



FOURTH ANNUAL REPORT

— OF THE —

PRESIDENT OF THE

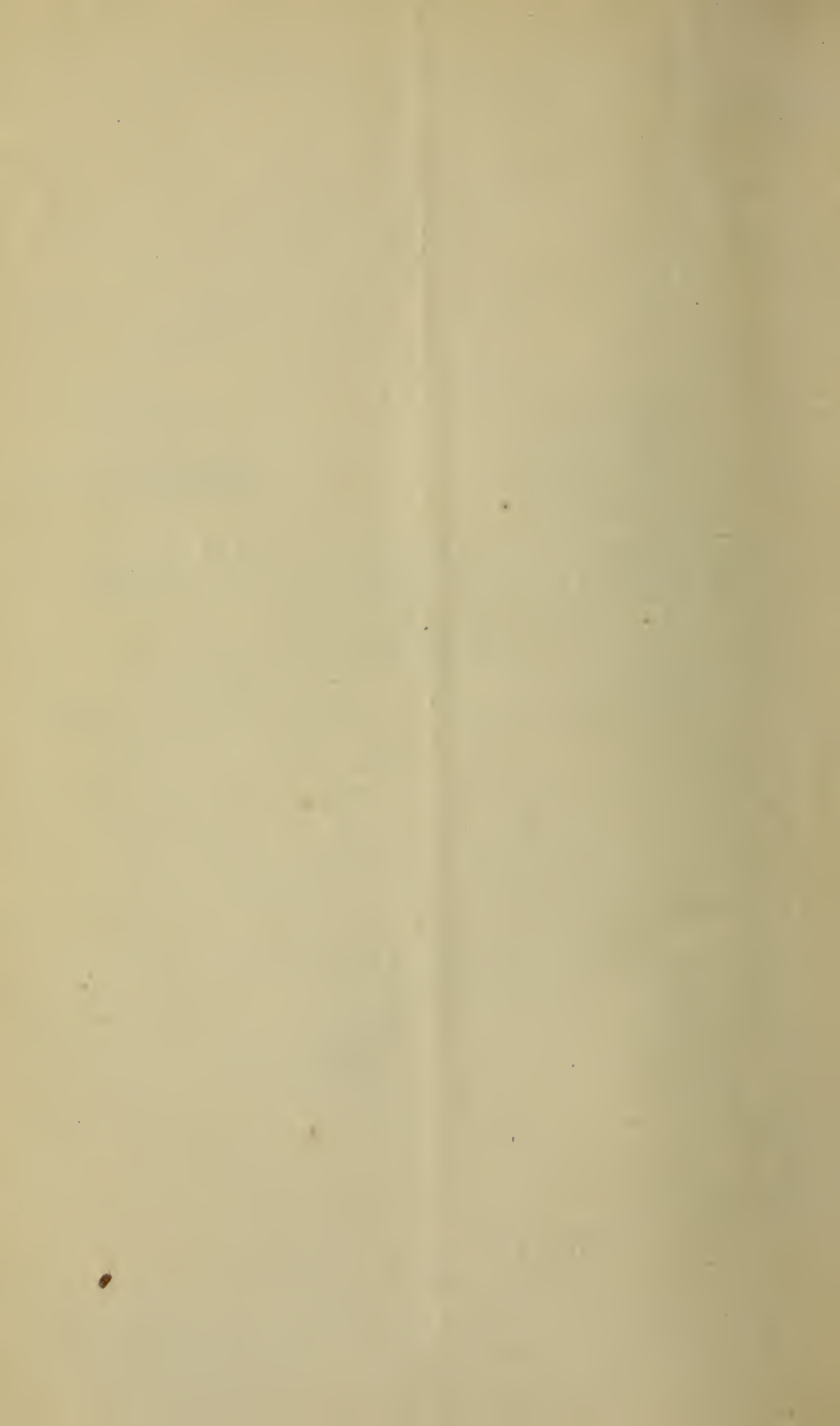
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Agricultural and Mechanical College of Texas,

— WITH —

Accompanying Documents.

COLLEGE STATION, TEXAS :
1880.



PRESIDENT'S REPORT.

A. & M. COLLEGE OF TEXAS, }
College Station, Texas, July 1, 1880. }

To His Excellency, O. M. Roberts, Governor of the State of Texas, and
Ex-Officio, President of the Board of Directors :

SIR : I respectfully submit this, the Fourth Annual Report of the Agricultural and Mechanical College of Texas, for the information of your Honorable Board, and to comply with the requirement of the Congressional act of 1862, section 5, which says :

Fourth. An annual report shall be made regarding the progress of each college, recording any improvements and experiments made, with their cost and result, and such other matters, including state industrial and economical statistics, as may be supposed useful ; one copy of which shall be transmitted by mail free by each to all the other colleges which may be endowed under the provisions of this act, and also one to the Secretary of the Interior.

To exhibit more completely the operations and present condition of the College, I annex hereto for reference the annual reports of the heads of its various departments.

A little more than six months ago this institution was turned over to the present faculty to mature by the end of the next session

A PLAN OF REORGANIZATION.

They found that it had been organized and conducted upon the university plan of elective studies, with the classics as its great central idea ; that no systematic and practical instruction had ever been given in what the law commanded should be the "leading object"—agriculture and the mechanic arts ; and that instead of popularizing the study of agriculture, horticulture, stock-breeding, and the mechanic arts, and thus fostering a juster appreciation of the dignity and importance of these great industrial pursuits which must ever be the foundation of the state's material prosperity, the college had sedulously cultivated a sentiment antagonistic to the development of these branches of study, and which continually decried them. It was in spirit and in fact, as far as circumstances permitted, a strictly literary college—top-grafted with a strongly prominent military feature. That it should fail to secure its support in an intelligent public opinion, while thus

conducted in the face of the mandatory legal enactments under which it was established and endowed, is not to be wondered at.

The Morrill bill explicitly requires that the interest of the endowment fund "shall be inviolably appropriated by each state which may take and claim the benefit of this act, to the endowment, support and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the Legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits in life."

Our state received the benefit of that act by accepting, in 1866, its provisions, and establishing, in 1871, the Agricultural and Mechanical College of Texas. And, to leave no doubt as to the real object of the college and its true relation to the educational system and industrial interests of the state, the constitution of 1876 declares :

Section 13. The Agricultural and Mechanical College of Texas, established by an act of the Legislature, passed April 17, 1871, located in the county of Brazos, is hereby made and constituted a branch of the University of Texas, for instruction in agriculture, the mechanic arts, and the natural sciences connected therewith.

With marked liberality the state has equipped the college with commodious buildings, a well stocked farm, laboratories, apparatus, instruments, means for purchasing tools and machinery, and all else necessary for complying with the intention of the law; but it has made no provision for prominently developing the literary side of the institution either by adding to the endowment fund, or paying the salary of a single professor. Simple honesty, therefore, requires that the trust imposed by the act of Congress, (and Texas is a bound trustee in the matter,) should be strictly discharged, and that, without excluding purely literary studies, the main stress of the teaching and influence should fall upon the technical branches specified. There is already a wide demand in our state for just such scientific and practical industrial education, and if there exists a demand equally as wide for a broader and more liberal literary and professional culture than existing colleges within our limits can supply, then the time has come for the establishment of the State University; it has an ample endowment fund already provided. For this college to do thoroughly and usefully its own distinctive work will tax to the uttermost its present limited resources in money and instructors.

Nearly every state in the Union has taken advantage of the Morrill act. In many the attachment of a so-called agricultural

department to an existing institution was deemed a compliance with the law. The result in every instance almost has been a disastrous failure, due to the overshadowing influence of the literary features. Over fifty colleges have received this endowment, and of them all the only ones which have proved eminently successful are those which were organized and conducted as separate and independent colleges, for the purposes specified in the act, and for no others. And this is very pointedly put by President William Johnston, of the Ontario School of Agriculture, who in his report on Agricultural Education in Germany and the United States (1879), to the Hon. Commissioner of Agriculture of Ontario, Canada, thus accounts for the failure of so many of our agricultural colleges: "The great faults of the majority of them are the attempts to teach too many subjects superficially; to give too many optional courses, to leave out a course of farm apprenticeship, and to make their curriculum too literary and not sufficiently technical."

I deemed it proper to call your attention, in this connection, to the following action of the United States Senate in March last:

Resolved, That the Secretary of the Interior is directed to furnish to the Senate such information as is in the possession of the Bureau of Education in relation to the state of technical or industrial education in the schools and colleges endowed in whole or in part by the government of the United States, and also in other schools and colleges in the several states and territories and the District of Columbia, and the extent to which provision has been made for the education of females in technical and industrial branches of education and the number of females in attendance at said schools.

To the official demand made upon me for information concerning this college I returned such answers as the facts warranted, and I regret that they could not show the technical and industrial side of the college in a more creditable condition.

The Faculty have unanimously instructed me, therefore, to recommend that the present elective system of studies be abolished and that there be substituted for it a well arranged *curriculum*, four years in length, and embracing, besides such other studies as your Board may prescribe, *English Language, History and Literature; Scientific and Practical Agriculture; Horticulture; Stock-Breeding, and Veterinary Science; Animal and Vegetable Physiology and Anatomy; Physics; Chemistry; Mineralogy and Geology; German Language and Literature; Philosophy and Political Economy; Mathematics; Land Surveying and Leveling; Civil Engineering; Mechanics; Drawing; Book-Keeping; Physical and Descriptive Geography, Elocution, Declamation and Composition; Military Tactics.*

To this *curriculum* optional courses in the Latin and Spanish languages should be added—the demand which already exists for

them being quite large, and they are too important to be omitted. But it is recommended that Greek and French be no longer taught. Should Greek be discontinued, it is respectfully suggested that the present course in Philosophy, including Logic, Mental and Moral Philosophy, and Political Economy, be given to the Professor of Ancient Languages, and that his department in future be designated the chair of Latin and Philosophy.

The course of instruction recommended, while it makes prominent the scientific and technical features, affords at the same time ample facilities for literary culture, and, indeed, requires a large amount of it as an essential for graduation.

THE INDUSTRIAL DUTIES.

The success and usefulness of this institution as a school of Applied Science will very largely depend upon the tact and ability with which the practical duties in the technical departments are arranged and enforced. There should be no misconception as to the object, nature, and intent of these duties. They should occupy to the theoretical courses of Agriculture, Horticulture and Mechanics relations analogous to those sustained by the laboratories, field-work and draughting, and dissecting room to the courses in Physics and Chemistry, Engineering, and Anatomy respectively--and without these practical supplements no course can be made valuable. The nature and extent of the labor to be performed must be left necessarily, under some general restrictions imposed by the Board, to the discretion and experience of the Professors of Agriculture and Mechanics, who are to be directly responsible for the success of their departments. The field and shop duties will not come every day, but will take their regular place in the round of practical work which includes also laboratory practice in Physics and Chemistry, field-work in Surveying and Leveling, Draughting and Designing, military drills, Animal and Vegetable Physiology and Anatomy, and Veterinary Clinics. They will not be intended to give mechanical skill in field operations to the student but to make him an intelligent applyer of the laws and principles of nature on the knowledge of which scientific agriculture and horticulture are based.

To the question: Shall these duties be voluntary or compulsory? my humble judgment deliberately and unhesitatingly replies that they should be compulsory. First, *on social grounds*; as all students under the proposed curriculum will be required to study the science of agriculture and mechanics, so they should also be required to make the necessary practical applications with their professors in the fields and the shops, otherwise there will inevit-

ably arise in the college a species of caste fatal to that homogeneity of feeling which should bind all its members into a close fellowship, and which, in my judgment, will soon destroy the efficiency and influence of the technical departments, however lavishly money may be spent in their equipment. Second, *on the ground of utility*: The courses if taught at all, ought to be made of some value to the student and to the state. The student of agriculture should be made as familiar as possible, not with books only, but with the actual soils, manures, crops, and implements themselves, and should see and participate in, as far as practicable, the best methods of culture and preparation. The student of horticulture must learn how to plant, cultivate, prune, bud, and graft fruit-trees and vines, not in the lecture room, but in the college orchard and vineyard, under the professor's practical instruction. And the student of mechanics should see, handle, and use the tools and machinery, which are necessary for the applications of the principles of mechanism and construction studied in the text.

As I said in my report of March last: All work will be carefully performed under the guidance of the instructors, who will systematically enforce attention to principles as well as practice, and thus make the exercises a mental discipline no less than a training for eyes, hand and muscles. *But no attempt should be made to convert this into a manual labor school*, in the popular acceptation of the term, in which the student is to be turned into a veritable field hand or mechanic, and his work received as a full compensation for board and tuition; no college can do this and make its academic course of any value. The practical work should be regarded solely as a part of the regular instruction, which, in after life, may be valuable to the student, whatever his profession.

In other words, just as the professor of Chemistry *compels* his class to go with him through the practical and experimental part of the course in his laboratory, so the the professor of Agriculture ought to be allowed to require *his* class to go with him through the practical and experimental parts of *his* course in *his* laboratories, the farm and orchard. This labor, being simply instructive and for the students benefit, should, of course, be without remuneration.

The Farm Superintendent, with his hired hands, should be responsible for the proper cultivation of the farm, but students who have sufficient skill to render their labor remunerative, and who desire to work at extra times to help pay their expenses should be permitted to do so, and should be paid therefor under some regulation of the Board. A number of such applications were received during the past session, which under our present

system had to be refused. There is no reason why student labor should not be so used in developing the internal resources of the college—the farm, the stock, the gardens, the orchard, the shops—that eventually the liberal education provided here, can be secured by any young man in our State, at a cost of not over one hundred dollars per annum, if he be able and willing to use his hands as well as his head for his own benefit. That the cheapening of higher education can be thus accomplished, the successful experience of our older and better agricultural colleges has put beyond doubt. But it will require the strictest economy and the most thorough business management in the administration of affairs in all departments.

THE FARM.

The college domain consists of 2416 acres, about equally divided into woodlands and rolling prairie. I have recently had the chief boundary lines rerun, and a map of the tract made, which shows that the present fence is at no point on the line, that the North boundary runs through fields now enclosed and cultivated by Messrs Boyd and Martin, and that a tract of 102 acres, deeded to the State, is in the possession of Mr. Peter Winters, who holds it under a deed from J. S. Fowlkes Esq. These matters need the immediate attention of the Board.

That portion of the tract which lies east of the railway contains about seven hundred and forty acres, and should be enclosed for the proper and economical development of the agricultural, horticultural and stock departments, so that it may not only become useful as a means of instruction, but valuable to the college as a source of revenue.

Regarding the farm as a State Experiment Station, the leading object in its management must undoubtedly be to supply professors and students with a practical working laboratory on a large scale for testing and introducing new varieties of seeds, plants, trees, improved farm machinery, and new methods of culture; and to investigate all questions immediately concerning our industrial interests, the breeding, feeding, and diseases of domestic animals; the relations of soils, fertilizers, climate to special crops; fruit and forest tree culture; and the advancement of all departments of economic and scientific husbandry—investigations which frequently involve too tedious, expensive, and delicate a series of experiments to be attempted by a single private person. And in accomplishing this object, it at the same time ought to show in full detail the proper cultivation of the great staples of our State.

The stock interests of Texas are too important not to receive attention here. If the enclosure recommended be made, 300 or

400 acres can be used as a pasture, and the breeding and management of fine stock be at once begun; in connection with which a thorough course of instruction will be given in the diseases of animals, and the scientific principles on which stock improvement is based.

The mess-hall supplies a home market for nearly everything a large farm can produce. Our gardens have furnished all needed vegetables for the school this spring, and with reasonable attention the pastures and stock-pens of the farm, when once established, would afford almost all the milk, lard, pork, mutton and beef, which the institution could consume.

The present location of the farm buildings is highly objectionable, and injurious to the interests of both farm and school. Their removal to a more suitable position is urged; and it would be well to require the Farm Superintendent to board the farm hands.

STATE APPROPRIATION.

There was received last year from the State the sum of \$7500.00, which the Board ordered to be expended as follows:

For Chemical Laboratory,.....	\$2500.00
For Philosophical, Engineering, and Surgeon's Dept's...	2450.00
For Library,.....	1550.00
For Farm,.....	1000.00
	<hr/>
	\$7500.00

DISBURSED:

For Chemical Laboratory,	\$2300.14
For Philosophical, E., and S. Dept's.,.....	2325.47
For Library,.....	1544.08
For Farm,.....	986.56
	<hr/>
	7156.25

Unexpended balance on deposit with H. C. Edrington, June 30, 1880. \$ 343.75

The itemized receipted bills for all the expenditures are herewith submitted for the examination of the Board.

The remaining \$7500 00 of the original State appropriation is now due, and in regard to its disposition, I renew the suggestion made in my previous report to your excellency, which gives an outline of a proposed course of instruction in the mechanic arts, with estimates for series of shops in wood and metal-working, including tools, machinery, engine, &c. This will cost about \$4000, money which will be well invested in thoroughly equipping what can soon be made one of the most valuable and attractive departments of the College. For the Agricultural department not less than \$2000 00 will be needed, to give it that extension necessary to make it serviceable as a means of instruction, and at the same time a source of revenue. There would be left, then, \$1500 00, every dollar of which is sadly needed now to furnish a Drawing

Academy with models, plates, casts &c., to supply a set of mathematical models, and to increase the library which is very deficient in works on Mathematics, Mechanics, Engineering, and Modern Languages. These amounts, so expended, will complete the equipment, handsomely begun last year, of all the departments, and will enable the College to meet for many years to come the demands of our State for liberal higher education, and to supply to students rare facilities for experimental and practical work in the leading industrial pursuits and the sciences on which they depend.

MILITARY INSTRUCTION.

In obedience to the requirements of the Congressional act the organization and discipline of the College is military, but a very exaggerated idea of the time spent here in military instruction prevails. The truth is, that instruction is limited to drills which are required only about one-half the session, occur after the day's scholastic duties are over, and consume an average of not more than three-quarters of an hour a day—time which in other colleges is given to idleness or recreation. The military system of school government is admirably suited to control and discipline young men with its manly and wholesome restraints and duties, and to supply—aside from its technical instruction—that training whose constant tendency is to develop in the student a high sense of personal honor and moral responsibility, and to give him those habits of regularity, promptness, self-reliance, and respect for proper authority, which go far to make the good citizen and the successful man of business. It thus becomes a potent factor in the formation of true character; and in its minute regulations for the government of students in quarters is particularly valuable for the preservation of proper order, police, and attention to studies.

The discipline has been excellent, and the instruction in military branches as full and efficient as a College of this character could desire; and the present proficiency of the battalion of students in military drills and duties is highly creditable to the Commandant, Capt. George T. Olmsted, Jr., *U. S. Army*, detailed in charge of this department.

I respectfully recommend that in future only *one* uniform be prescribed for students, viz: The present undress uniform, slightly modified in cut, which is neat and serviceable. The dress-suit and dress-hat are an unnecessary expense, which now bears heavily on some students.

Nor should two suits be required at once, as one is worn out it can be replaced by another; and in view of the practical agricultural and mechanical duties to be performed next year, I would

also suggest, as a matter of economy, that students be permitted to wear their ordinary citizen's clothing while performing them.

ACADEMIC DEPARTMENT.

The work in this department since the reorganization in Nov. last, has been done by the following

FACULTY.

John G. James, Professor of Mental and Moral Philosophy.
 James R. Cole, A. M., Prof. English Language and Literature.
 Charles P. Estill, A. M., Professor Ancient Languages.
 H. H. Dinwiddie, Professor Physics and Chemistry.
 M. E. B. G. Gartner, Professor Modern Languages.
 G. T. Olmsted, Jr., *U. S. A.*, Professor Military Science.
 L. L. McInnis, A. M., Acting Professor Mathematics.
 John W. Clark, Assistant Prof. Mathematics and Languages.

The Chairs of Agriculture, Applied Mathematics, and Mathematics having been left vacant, I assigned Adjunct Professor McInnis to the chair of Mathematics, and to Professor Dinwiddie were given the classes in Agriculture and Applied Mathematics. In their hands these departments have had all needed care, and the classes have been faithfully taught and successfully advanced—except the class in Agriculture which was broken up last fall by the withdrawal of students.

Finding that the interests of the College demanded another instructor, I used the authority vested in me and appointed in December last, Mr. John W. Clark Assistant Professor, at a salary of seventy dollars per month. He was assigned classes in English, Latin, Mathematics, and Surveying, and also acted as Assistant Commandant in the Military Department. The interest, zeal, and capacity which he has uniformly displayed in the discharge of all his duties has given me the highest satisfaction.

The chairs now vacant:

1. Mechanics, Engineering, and Drawing;
2. Agriculture;
3. Mathematics;

imperatively demand the action of the Board at this meeting, and should be filled promptly from the large number of able applicants whose papers are now before you; the earlier the better, so that the professors elect of Agriculture and Mechanics may have the summer months to spend in visiting the various technical schools of the North and East, for the benefit of those departments here. The present Farm Superintendent, Mr. E. Kellner, should be added to the teaching force by being required to assist the Professor of

Agriculture in giving classes practical instruction in that branch and in Horticulture, for which duty he is well qualified by his long experience.

The very important chair of Biology and Veterinary Science should be established, and could be well provided for by assigning the College Surgeon, Dr. D. Port Smythe, to it, and thus putting him on the same footing with the other Professors. He would be required to discharge, as a part of his duties, the service now required of him as Surgeon; and being quartered on the grounds, instead of five miles distant as heretofore, he could much more satisfactorily and conveniently render his medical services.

These additions to our faculty, and the reduction in the number of classes by the adoption of a *curriculum* in place of the present scheme of elective studies, will render it easy to give thorough instruction to at least 150 students.

The fourth annual session closed June 23, 1880, with one hundred and forty-three matriculates, distributed as follows :

School of Mathematics,.....	138
School of English Language and Literature,.....	132
School of Ancient Languages,.....	94
School of Modern Languages,.....	49
School of Agriculture and Chemistry,.....	14
School of Moral Philosophy,.....	11
School of Applied Mathematics,.....	8

The position assigned this College by constitutional provision is at the head of the educational system of the State, and generous legislative appropriations have been made to qualify it for properly filling that position. It must therefore cease to come into competition, as it has done in the past, with our preparatory schools, and by occupying its own distinctive higher educational plane make them its feeders rather than competitors, and thus stimulate and elevate them to higher and better preparation of pupils. To do this an entrance examination should be prescribed and no one should be admitted to the Freshman class who could not prove to the Faculty his proficiency in Reading, Writing, Spelling, English Grammar, Arithmetic and Geography. For advanced classes higher examinations should be rigidly required.

FINANCIAL CONDITION.

The following unsettled accounts, with accompanying papers, are filed for the action of the Board :

O. H. P. Minturn,.....	\$400.00
Baker & McKenney,.....	304.00
Plant Seed Company,.....	31.95

As they are claims which originated several years ago under the old administration, I declined to pay them or to take the respon-

sibility of putting them on the College books as liabilities. They are, so far as my knowledge goes, the only unadjusted claims now in existence against the College.

I submit a statement of the financial condition of the College July 1, 1880, made up from the carefully prepared report of the Treasurer and the inventories of supplies on hand:

LIABILITIES:

Cash overcheck at H. C. Edringtons,	\$4761.01
Due to Cadets,	117.71
Due Library Appropriation,	7.70
Due Employees in full to July 1st, 1880,	387.86
Due for Supplies in full to July 1st, 1880,	750.31
	<hr/>
	\$6024.59

ASSETS.

Due by Cadets,	\$919.61
Due by T. S. Gathright, on Book Store acct.	358.95
Due by Professors,	380.89
Book Store Supplies on hand per inventory,	907.26
Mess-hall Supplies on hand per inventory,	82.55
Oil and Wood Supplies on hand per inventory,	157.00
	<hr/>
	\$2806.26

Excess of Liabilities over Assets, July 1st, 1880,\$3218.33

The Treasurer's report gives an accurate statement of the business for the entire session of 1879-80, which shows, notwithstanding the reduced number of students, a net deficit for the session of only \$57 94, and this, too, including a large amount paid by my predecessor during the summer and fall for repairs and improvements, which was improperly charged to Expense Account.

Appended will be found an itemized account of all warrants drawn by the President of the College from June 23d, 1879, to July 1st, 1880, amounting to \$24866.30, of which \$12023.61, was drawn by President Gathright up to his withdrawal November 24, 1879, and the balance, including November pay-rolls, mess-hall accounts and other bills due December 1st, by me. Receipts for the same are herewith presented for examination. The books will show that of the debt now due by the College \$625.48, was paid by me on your order to retireing professors for improvements, and \$124.22 was incurred by me for enclosing the back yards of the College and Mess-hall, and that the ballance represents last years bill and improvements never put upon the books until paid out of this years first term's deposits, and interest.

If the College be managed on prudent business principles this indebtedness can easily be paid in two years from the current revenue of the College, with, say, 140 students, provided the suggestion of a wise economy be followed and the number of persons being paid out of the Contingent Fund be reduced. The persons

so paid at present are a Surgeon, Architect, Treasurer, Store-keeper, Hospital Steward, Musician, two Janitors, and two Farm hands. Next session the farm and garden products will more than pay farm hands; and the offices of Architect, Treasurer, and Store-keeper might well be dispensed with.

MISCELLANEOUS.

A separate building should be provided as a hospital or sick-home for such students as may need medical attention, as the present accommodations for the sick are in the main college buildings, and are on many accounts unsuitable. A portion of the wooden barracks, now vacant, could be moved and remodeled, to the great advantage of the College.

A pavement from the College to the Mess-hall is badly needed, as in wet weather both buildings are injured and rendered unsightly by the mud carried in on the feet of students, marching to and from meals. The tiles made at Kosse would make a cheap and durable pavement, and I ask authority to have one constructed.

I submit herewith the application of Mr. E. B. Pugh, for an extension of his lease of the five acres on which his store is situated, with my approval.

The mess-hall department has been most admirably and economically administered by Mr. B. Sbisá, the Steward, whose valuable services should be retained next session. Special attention is called to the recommendations in his report; the oven and dining hall imperatively demand repairs and renovating before next session opens.

In conclusion permit me to say that the Faculty fully appreciate the desire and intention of your Excellency and your Honorable Board to carry out the intent of the law to make this distinctively an institution for the liberal and practical education of the industrial classes, and at a cost which will place its great advantages within the reach of the main body of our population. The curriculum submitted to you has been framed accordingly; and whatever course of duties and studies you may prescribe, I can assure you that they will labor faithfully and zealously to render it efficient and successful. With highest respect, I remain, Sir,

Your obedient servant,
JNO. G. JAMES,
President.

TREASURER'S REPORT.

A. & M. COLLEGE OF TEXAS, }
College Station, July 1, 1880. }

To President John G. James.

SIR: I have the honor to submit the following report of the operations of the Treasurer's Department to date.

Every legitimate debt due by and to the College has been placed upon the books before taking the following

BALANCE SHEET, JULY 1, 1880.

E. E. Fitzhugh.....	\$ 75 00	
W. H. Brown.....	5 00	
K. M. VanZandt.....		20 83
F. L. Fox.....		8 10
J. R. Downs.....	14 00	
W. L. Bishop.....	5 63	
J. C. Dallas.....		9 75
E. J. Mullins.....	25 00	
S. Winston.....		7 00
F. A. Reichardt.....	15 00	
L. J. Kopke.....	50 00	
R. A. Watson.....		32 00
R. C. Porter.....	3 28	
X. Ryan.....	20 00	
E. G. Evans.....		4 13
S. A. Hare.....	35	
T. E. Blakemore.....	7 65	
D. E. Alexander.....	33 00	
J. Chance.....	20 63	
J. W. Munson.....		30 00
R. H. Terrell.....	5 00	
E. P. Hill.....	86 50	
J. N. Goode.....	98 90	
A. Banks.....	30 00	
A. English.....	70 00	
B. J. Parker.....	16 00	
J. J. McNutt.....	55 71	
W. A. Darby.....	5 00	
H. E. Thomas.....	57 69	
R. L. Nichols.....		5 90
J. S. Fowlkes & Co.....		38 37
Walter Woessner.....	30 00	
C. W. Robinson.....	40	
J. W. Thomason.....	50	
T. P. Smith.....	2 00	
W. Hamberg.....	2 00	
J. W. Harris.....	45 00	
P. Levy.....	18	
A. Alford.....	17 29	
W. R. Houston.....	35 00	
T. S. Gathright.....	358 95	
G. Gartner.....	1 50	
L. L. McInnis.....	1 00	
J. W. Clark.....	1 00	
Milby & Porter.....		262 70

Library Appropriation.....		7 70
H. H. Dinwiddie.....	11 97	
J. L. Peeler.....	12 27	
J. R. Cole.....	15 66	
C. P. Estill.....	28 13	
G. T. Olmsted.....	249 60	
J. W. Yarborough.....	20 63	
Janson McClurg & Co.....		128 67
A. & M. College of Texas.....	749 70	
Garth & Griffiths.....		33 65
D. Port Smythe.....	72 03	
W. Arnold.....		8 00
A. Nelson.....		5 00
J. McPhail.....		15 00
E. B. Pugh.....		4 00
J. H. Suber.....		22 00
E. Sessums.....		15 00
Fred Roehl.....		20 00
O. H. P. Minturn.....		50 00
Maria Adams.....		36 00
Delilah Humphreys.....		45 23
J. Roehl.....		57 65
S. E. Ritchey.....		89 94
B. Sbisá.....		252 86
E. L. H. Kellner.....	20 00	
Kosse Band.....		54 00
Profit and Loss.....	3615 44	
Cash.....		4761 01
T. M. Harris.....	35 00	
	<u>6024 59</u>	<u>6024 59</u>

A summary of my receipts and disbursements is given below, for the verification of which I submit my Cash Book.

A. & M. COLLEGE OF TEXAS,

In account with H. H. DINWIDDIE, Treasurer.

1879.		
June 30	To cash pd Prest. warrant 432, out at setlmt. June 23	4 00
Sept. 30	“ “ “ “ 445, “ “ “	16 00
Nov. 24	“ “ “ Gathright's war. 450-576, inclusive	12023 61
1880.		
July 5	“ “ “ James' war. 577-771 incluv. to date	12342 69
		<u>24886 30</u>

CR.

1879.		
June 23	By balance per settlement this date.....	14 38
Nov. 24	By deposits to end of Pres. G.'s administration.....	12248 88
1880.		
July 1	By deposits from November 24, 1879, to date.....	7862 03
	To balance, July 1st, 1880.....	<u>20125 29</u>
		4761 01

I also respectfully submit for your consideration the following accounts, showing this session's revenue and expenses :

WASHING,

In account with A. & M. COLLEGE OF TEXAS.

November 1, 1879,	To cash paid for October washing.....	\$ 155 99
December 1, 1879,	To cash paid for November washing.....	157 32
January 5, 1880,	To cash paid for December washing.....	76 00
January 31, 1880,	To cash paid for January washing.....	72 33
February 28, 1880,	To cash paid for February washing.....	82 00
March 30, 1880,	To cash paid for March washing.....	87 33
April 30, 1880,	To cash paid for April washing	84 66
May 31, 1880,	To cash paid for May washing.....	85 80
June 23, 1880,	To bill of June washing still due.....	81 33
June 23, 1880,	To refunded withdrawing cadets during session.	239 56
	Balance....	28 42
		<hr/> 1150 74

CR.

July 1, 1880,	By amounts received from cadets during session	1150 74
	By balance, being net profit of washing account for the session of 1879-80.....	28 42

MEDICAL ATTENDANCE,

In account with A. & M. COLLEGE OF TEXAS.

November 28, 1879,	To amt. twice credited by mistake and refunded	6 50
March 15, 1880,	To amt. twice credited by mistake and refunded	6 50
April 26, 1880,	To amt. twice credited by mistake and refunded	6 50
May 3, 1880,	To amt. twice credited by mistake and refunded	6 50
	Balance.....	1267 50
		<hr/> 1293 50

CR.

June 23, 1880,	By receipts from cadets during session.....	1293 50
July 1, 1880,	By balance, being net profit of this account for the session of 1879-80.....	1267 50

The expenditures properly belonging to this account were by mistake charged to expense account, and will appear in the debits of that account.

FUEL AND LIGHTS,

In account with A. & M. COLLEGE OF TEXAS.

1879.		
October 1.	To cash paid T. J. Gray for wood, 1878.....	69 75
October 1,	To cash paid B. E. Bee, bill of wood July 26....	10 00
October 1,	To cash paid T. J. Gray, bill of wood July.....	25 00
October 7,	To cash paid for oil.....	35 40
October 11,	To cash paid T. J. Gray for wood.....	120 00
November 4,	To cash paid T. J. Gray for wood.....	125 00
December 4, 1880.	To cash paid Thos. S. Gathright for wood.....	25 50
January 2,	To cash paid T. J. Gray for wood.....	31 50
January 5,	To cash paid for oil.....	35 50
February 10,	To cash paid for oil.....	69 22

March 15,	To cash paid for oil.....	35 21
May 13,	To cash paid for oil.....	34 90
Aug. 11, '79,	To cash paid B. E. Bee for wood.....	90 00
July 1, '80,	To amounts refunded cadets during session.....	130 13
	Balance.....	99 61

CR.

1880.			
July 1,	By cadets, professors and employees.....	709 97	
	By wood on hand, one hundred cords.....	150 00	
	By oil on hand, twenty gallons.....	7 00	
	By amt. pd Gray for ses. '78, chd. above to '79.	69 75	
		<hr/>	
		936 72	936 72
	By balance, being net profit this acct. session 1879-80....	99 61	

BOARD ACCOUNT,

To A. & M. COLLEGE OF TEXAS, Dr.

1879.			
October 1,	To cash paid W. E. Tabor.....	56 66	
	To cash paid J. S. Fowlkes & Co.....	508 90	
3,	To cash paid J. Roehl.....	18 52	
7,	To cash paid C. Erhardt.....	13 50	
7,	To cash paid J. S. Fowlkes & Co.....	378 74	
20,	To cash paid S. E. Ritchey.....	175 30	
Nov. 1,	To cash paid J. Roehl.....	44 25	
1,	To cash paid J. W. Tabor.....	25 96	
1,	To cash paid W. E. Tabor.....	352 90	
7,	To cash paid B. Sbisa.....	473 88	
7,	To cash paid J. S. Fowlkes & Co.....	493 95	
10,	To cash paid S. E. Ritchey.....	247 72	
Dec. 1,	To cash paid W. E. Tabor.....	180 05	
1,	To cash paid S. E. Ritchey.....	153 50	
1,	To cash paid J. Roehl.....	45 15	
10,	To cash paid B. Sbisa.....	433 69	
15,	To cash paid J. S. Fowlkes & Co.....	193 92	
1880.			
Jan. 1,	To cash paid S. E. Ritchey.....	117 60	
1,	To cash paid J. Roehl.....	29 60	
1,	To cash paid J. W. & W. E. Tabor.....	73 00	
1,	To cash paid Milby & Porter.....	374 00	
9,	To cash paid B. Sbisa.....	234 82	
Feb. 2,	To cash paid S. E. Ritchey.....	128 30	
2,	To cash paid J. Roehl.....	32 20	
2,	To cash paid M. Bonneville.....	72 66	
11,	To cash paid B. Sbisa.....	231 98	
Mar. 1,	To cash paid J. Roehl.....	28 07	
1,	To cash paid S. E. Ritchey.....	125 80	
3,	To cash paid Milby & Porter.....	104 25	
3,	To cash paid W. Koppe.....	24 45	
3,	To cash paid M. Bonneville.....	94 11	
5,	To cash paid B. Sbisa.....	262 80	
24,	To cash paid Milby & Porter.....	43 15	
Apr. 1,	To cash paid S. E. Ritchey.....	127 44	
1,	To cash paid J. Roehl.....	34 62	
1,	To cash paid M. Bonneville.....	88 57	
8,	To cash paid B. Sbisa.....	235 78	
May 3,	To cash paid S. E. Ritchey.....	125 00	
Apr. 26,	To cash paid Milby & Porter.....	353 69	
30,	To cash paid Milby & Porter.....	169 70	
May 3,	To cash paid J. Roehl.....	71 35	
10,	To cash paid B. Sbisa.....	234 73	
14,	To cash paid M. Bonneville.....	88 42	
20,	To cash paid Milby & Porter.....	77 60	
31,	To cash paid J. S. Fowlkes & Co.....	784 58	

June	1,	To cash paid S. E. Ritchey.....	115	72	
	1,	To cash paid J. Roehl.....	79	77	
	1,	To cash paid M. Bonneville.....	36	75	
	7,	To cash paid B. Sbisa.....	263	33	
July	1,	Bill still due Milby & Porter.....	262	70	
	1,	Bill still due J. S. Fowlkes & Co.....	31	87	
	1,	Bill still due B. Sbisa.....	252	86	
	1,	Bill still due S. E. Ritchey.....	89	94	
	1,	Bill still due J. Roehl.....	57	65	694 52
	1,	To amounts refunded withdrawing cadets....			2217 00
Jan. 1879	1,	To cash paid for oil.....		15	55
		CR.			
Oct.	1,	By W. E. Tabor's act. of last session paid out of and charged to this session.....	56	66	
	1,	By J. S. Fowlkes & Co.....	508	90	
	3,	By J. Roehl.....	18	52	
	7,	By C. Erhardt.....	13	50	
1880					
July	1,	By amounts received from Profs. and Cadets from Oct. 1, 1879 to date.....	11281	33	
	1,	Supplies on hand per B. Sbisa's Inventory.....	82	55	
		Balance.....			323 88
					<hr/>
			11961 46	11961 46	
1880					
July	1,	By balance, being net profits of Boarding Department for the session of 1879-80.....	323	88	

EXPENSE,

In account with A. & M. COLLEGE OF TEXAS.

1879					
October 1,		To cash paid W. E. Tabor on ac. of farm.....	51	33	
October 2,		To cash paid J. H. Suber repairing mattresses....	94	00	
October 2,		To cash paid Wooten & Williams sundry repairs	5	97	
October 2,		To cash paid M. W. Summers for work on farm July, August, September.....	32	00	
October 2,		To cash paid W. Redding for work on farm July, August, September.....	35	00	
October 2,		To cash paid J. H. Suber for work on farm.....	6	00	
October 2,		To cash paid R. R. Royall for work on farm.....	3	15	
October 2,		To cash paid D. Port Smythe for medical stores..	100	00	
October 3,		To cash paid C. P. B. Martin house rent for Sept.	15	00	
October 3,		To cash paid J. Barta.....	3	00	
October 7,		To cash paid Dallas Herald, advertising.....	15	25	
October 7,		To cash paid H. L. Spain, copying proceedings of Directors.....	8	50	
October 7,		To cash paid book store for stationery.....	20	55	
October 9,		To cash paid F. Roehl, Janitor's wages 3½ months to October 1st.....	52	50	
October 9,		To cash paid P. Winters, repairing ovens.....	7	00	
October 11,		To cash paid E. B. Pugh, postage.....	18	87	
October 11,		To cash paid T. J. Gray, hauling to Oct. 1st.....	6	87	
October 13,		To cash paid J. W. Tabor, hauling.....	15	30	
October 13,		To cash paid Garth & Griffiths.....	34	52	
October 22,		To cash paid Advertising.....	54	75	
October 22,		To cash paid Edrington, exchange.....	12	70	
October 25,		To cash paid A. H. Belo & Co, advertising.....	51	90	
October 28,		To cash paid Smith & Huckabee, printing.....	265	27	
October 29,		To cash paid W. Koppe, bill from Mar. 24 to date	734	10	
October 30,		To cash paid W. Redding, farm labor.....	12	00	
November 1,		To cash paid C. P. B. Martin, house rent.....	15	00	
November 1,		To cash paid F. Roehl & Carbierto, Janitors.....	37	00	
November 3,		To cash paid Employees.....	50	00	
November 6,		To cash paid E. B. Pugh, com. and postage.....	69	90	
November 8,		To cash paid W. J. Moore, hauling.....	5	00	
November 13,		To cash paid Collegian, advertising.....	10	00	
November 20,		To cash paid J. D. Elliott, advertising.....	15	00	
November 20,		To cash paid J. L. Power, College seal.....	11	25	

November 20,	To cash paid H. C. Edrington.....	13 65
November 24,	To cash paid A. D. McConnico, box rent.....	7 03
November 25,	To cash paid T. P. Wooten, repairs.....	6 15
November 27,	To cash paid H. L. Spain, copying.....	4 84
November 27,	To cash paid R. A. Brantley, sergt.-at-arms.....	32 60
November 27,	To cash paid J. Schneider, bugler.....	15 00
November 27,	To cash paid F. Roehl, Janitor.....	20 00
November 27,	To cash paid P. Carlienents, Janitor.....	6 00
November 27,	To cash paid Employees.....	33 50
December 3,	To cash paid bookstore, stationery.....	12 75
December 6,	To cash paid Dr. Martin, rent.....	15 00
December 6,	To cash paid for postal cards.....	50
December 9,	To cash paid F. Roehl for Gattitz.....	3 00
December 13,	To cash paid Smith & Huckabee, postal cards....	4 00
December 13,	To cash paid Maj. Morris as treasurer.....	75 00
December 15,	To cash paid for postage stamps.....	1 00
December 19,	To cash paid E. Kellner, farm.....	28 00
December 30,	To cash paid P. Carlienerts, janitor.....	11 00
December 30,	To cash paid H. C. Edrington, exchange.....	2 10
1880		
January 1,	To cash paid F. Roehl, janitor.....	21 00
January 1,	To cash paid J. H. Suber.....	20 00
January 5,	To cash paid for postage, inks, and stationery..	4 96
January 5,	To cash paid J. Seneider, bugler.....	5 50
January 5,	To cash paid E. Kellner, farm.....	30 50
January 5,	To cash paid M. Strickland, stationery.....	8 85
January 7,	To cash paid express and telegram.....	2 40
January 13,	To cash paid J. W. Howell.....	23 55
January 13,	To cash paid H. C. Edrington.....	13 00
January 13,	To cash paid J. W. Tabor.....	16 90
January 13,	To cash paid for postage.....	1 78
January 13,	To cash paid express freight.....	50
January 13,	To cash paid Aug. Reif.....	6 38
January 13,	To cash paid L. T. Bennett, mattress returned..	2 00
January 26,	To cash paid for freight on cartridges.....	75
January 26,	To cash paid the Galveston News, advertising..	34 20
January 31,	To cash paid J. G. James for pay roll.....	102 50
January 31,	To cash paid W. L. McConnico.....	6 25
February 6,	To cash paid O. H. P. Minturn.....	51 00
February 24,	To cash paid J. G. James.....	9 25
March 1,	To cash paid H. C. Edrington, exchange.....	6 00
March 2,	To cash paid E. B. Pugh.....	38 50
March 2,	To cash paid J. G. James for pay roll.....	152 00
March 2,	To cash paid Wm. Koppe, for repairs, &c.....	38 75
March 17,	To cash paid J. G. James.....	10 50
March 19,	To cash paid J. R. Fisk, drummer.....	2 50
March 19,	To cash paid H. C. Edrington, exchange.....	50
March 19,	To cash paid H. C. Edrington, interest.....	70 38
March 30,	To cash paid Smith & Huckabee.....	28 75
April 3,	To cash paid J. G. James for pay roll.....	153 75
April 7,	To cash paid J. G. James.....	3 00
April 7,	To cash paid A. J. Proceller.....	1 50
April 7,	To cash paid E. B. Pugh, postage.....	7 90
May 3,	To cash paid E. Kellner, farm.....	160 00
May 10,	To cash paid J. S. Fowlkes & Co.....	29 00
May 8,	To cash paid H. C. Edrington, exchange.....	2 04
May 21,	To cash paid Jeff Mitchell for surveying.....	12 00
May 31,	To cash paid J. G. James for pay roll.....	153 50
June 4,	To cash paid Wm. Koppe.....	35 10
June 7,	To cash paid Frank Stanley, printing.....	4 42
June 18,	To cash paid H. C. Edrington, exchange.....	25
June 25,	To cash paid H. C. Edrington, interest to July 1,	147 94
June 25,	To cash paid W. M. Crisp for book store.....	23 12
June 25,	To cash paid J. R. Fisk, drummer.....	15 00
June 25,	To cash paid H. H. Dinwiddie, services as treas.	125 00
June 25,	To bill of Garth & Griffiths for lumber, May 29..	7 00
June 25,	To bill of J. S. Fowlkes & Co., May 15.....	7 00

June 18,	To cash paid T. S. Gathright for amt. borrowed from him July 17, 1879, with interest to Dec. 1, 1879, which amt. was charged to A. & M. College and transferred to this account.....	2060 00
June 30,	To sundry unpaid bills of employees, to July 1..	69 00
June 30,	To sundry unpaid bills of employees, to July 1..	70 00
June 30,	To cash paid Dr. Smythe, surgeon's salary.....	800 00
June 30,	To bill of Garth & Griffiths, June 19.....	7 00
June 30,	To bill of Kosse band, music at Commencement,	40 00
June 30,	To bill of Dr. Smythe, medicines.....	124 97
June 30,	To amt. charged sundry cadets by mistake.....	70 00

CR.

1879.		
October 28,	By cash received from T. S. Gathright....	30 00
December 11,	By cash received for furniture broken....	11 25
1880.] January 19,	By cash received for diploma	5 00
January 2,	By cash received for mattress	2 00
January 28,	By cash received of Minturn	25
April 10,	By cash received for exchange on drafts..	6 02
April 10,	By cash received for exchange.....	25
June 3,	By cash received for exchange.....	45
June 23,	By cash received for hymn books	50
July 1,	By cash received for diplomas	25 00
July 1,	By cash received from Dr Smythe.....	100 00
July 1,	By cash received from matriculation fees,	2840 37
July 1,	By amt. Koppe's bill belonging to ses. '78,	183 50
July 1,	By amt. Howell's " " " "	2 50
July 1,	By amt. Littlefield's " " " "	13 00
July 1,	By cash bor'd T. S. Gathright, July 17, '79,	200 00
	Balance.....	1777 35

		6997 44	6997 44
July 1, 1880,	By bal., being net loss this acct. ses. 1879-80....		1777 35

The following statement shows the actual results of the business of the College for the session of 1879-80, ending July 1, 1880, as indicated by imaginary accounts which show profit and loss. Its balances will be found not to agree with the balances shown on the books, for the reason that the books were not closed at the end of last session, and hence many items belonging to that session were carried forward to this. This statement may be verified by reference to itemized accounts which I submit herewith.

PROFIT AND LOSS.

In account with A. & M. COLLEGE OF TEXAS.

1880.		
July 1,	To Medical Attendance	\$1267 50
	To Board	323 88
	To Fuel and Lights.....	99 61
	To Washing.....	28 42
	Balance.....	57 94

CR.

1880.		
July 1,	By Expense Account.....	\$1777 35
		<hr/>
		\$1777 35 \$1777 35

1880.		
July 1,	By balance, being net loss for Session 1879-80..	57 94

I would call attention to the fact that I have found charged to

the expense account numerous items which in no sense belong to the running expenses of the college, but really represent permanent improvements. If these items could be separated there would be shown a net gain from the operations of the past session.

I herewith respectfully submit through you for the inspection and approval of the Honorable Board of Directors all the books, vouchers, and papers belonging to my office. It is proper to add, that those turned over to me by Maj. Morris, my predecessor, indicate the greatest care and fidelity on his part in the discharge of his duties as treasurer.

H. H. DINWIDDIE,
Treasurer, A. & M. College of Texas.

REPORT OF PROFESSOR OF ENGLISH.

A. & M. COLLEGE OF TEXAS,
College Station, June 23, 1880. }

John G. James, President :

SIR: I herewith submit my report of the operations of the Department of English Language and Literature since I have been in charge.

The classes in this department were turned over to me November 24, 1879. Probably as many as 80 students have attended my classes during the year, though the average has not much exceeded 65. The greater number have studied well and advanced as rapidly as students generally do under the most favorable circumstances. I found the classes had been pursuing their studies a few weeks, and I continued them just where I found them in the books selected by my predecessor. I was informed that it was the wish of the Directors to have no change in the programme of studies during the year, but to make the most of the plans already adopted.

I have pursued this course strictly, having inquired of my predecessor concerning his plans, modes and intentions. While teaching the works already in use, I have recommended, for future use in this department, a change of books in some instances where I thought improvement was attainable.

The classes turned over to me were: United States History, Universal History, Fowler's English Grammar, Quackenbos' English Grammar, Chaucer's Poems and Cleveland's English Literature. The last named divided into two sections. These were the classes taught by the Professor of English Language and Literature before I took charge. In consequence of a reduction in the number of the Faculty, additional duties were imposed on me, and I also took the classes in Descriptive Geography and Physical Geography. I soon organized all the students in my department into Composition and Declamation classes and heard them every week. These accumulated duties made my work very heavy, but I did it cheerfully, and the more so, as I believed my efforts were appreciated by the students and encouraged them to more earnest work.

I delivered oral lectures to my various classes frequently, using the blackboard whenever practicable, and written lectures, at intervals, on the more advanced studies.

The following works have been carefully studied through, most of them twice, under my instruction: Quackenbos' English

Grammar, Fowlers' English Grammar, Quackenbos' History of the United States, Wilson's Outlines of History, Monteith's Geography, Maury's Physical Geography, Hepburn's Rhetoric, Cleveland's English Literature, and a portion of Chaucer and Shakspeare. In most of these studies I have required the student, when reviewing, to write a careful abridgment of the work at the end of each exercise, so that, in addition to twice studying the text and the lectures throughout, at the close the student had a critical review of the whole work written and arranged by himself.

Without proper maps and charts, and with the surroundings as I found them when I took charge, I think I am justified in saying all has been done that could have been reasonably required in the Department of English Language and Literature.

I recommend the adoption of the following works for future use in this department :

Quackenbos' English Grammar, James' Southern Selections for Reading and Oratory, Hill's Elements of Rhetoric and Composition, Hill's Science of Rhetoric, Stephens' History of the United States, Wilson's Outlines of History, Shepherd's History of the English Language, Jevons' Logic, Shaw's English Literature, Green's History of the English People, Chaucer's and Shakspeare's Poems, Monteiths Geography.

In addition to the above works, I recommend that the best chronological and historical maps and charts be procured, as they are especially valuable to the professor in his oral lectures to the classes, and are as useful and necessary to the teacher of history and for the practical application of the lessons to be taught in the various studies of the department of English as the black-board is to the teacher of Mathematics. I recognize the fact that the Chair of English Language and Literature has of late years assumed a more important position in the institutions of learning all over the world, and now is universally given a place among the foremost in the estimation of the English speaking people, and thus estimating the importance of my work, I have not entirely relied on the studies and experience of the past, but have sought out new fields and avenues through which to lead the minds of the students, giving them every inducement in my power to love the work set before them in my department; and the result of our combined efforts as exhibited in the week's examination just finished is a gratifying evidence of our success.

The following students are recommended for graduation in the Department of English Language and Literature, having completed the course required of them : C. S. Miller, D. E. Alexander,

L. J. Kopke, W. H. Brown, E. E. Fitzhugh, F. F. Bledsoe, N. A. Shaw, T. E. Blakemore, W. T. Small.

Respectfully submitted,
J. R. COLE,
Prof. Eng. Lang. and Lit.

REPORT OF PROFESSOR OF ANCIENT LANGUAGES.

A. & M. COLLEGE OF TEXAS,
College Station, Texas, June 23, 1880. }

John G. James, President :

SIR : I have the honor to submit, through you for the information of the Board of Directors, the following report of work done in the Department of Ancient Languages, since it came into my hands in December last.

The total number of pupils in this department during that time has been 58, 53 in Latin and 5 in Greek. The disproportion in numbers taking the two languages, it is proper to state, was not so great, previous to December.

Latin.—The course in this language embraces a term of four years; one Academic and three Collegiate. The classes are known respectively as Academic, Junior, Intermediate and Senior.

The Academic class is composed of 36 members, the Junior class of 8, the Intermediate of 6, and the Senior of 3 members.

Studies.—The course, in accordance with instructions of the Board, has been that laid down in the catalogue, and has not been departed from.

The Senior class has read the *Germania* and *Agricola* of Tacitus entire, with extracts from Cicero's *Tusculan Disputations* viz: Books I, II and III. The class has also had weekly practice in Prose Composition.

The Intermediate class has read portions of the *Odes* and *Satires* of Horace, and has also had weekly instruction in Prose Composition.

The Junior class has read Cicero's *Orations*, with extracts from the *Odes* of Horace, and has had weekly exercises in Allen and Greenough's Prose Composition.

The Academic or Preparatory class has been instructed in the Grammar thoroughly, with readings from Cæsar and simpler selections. This class on account of its size has been divided into three sections. In the conduct of these, I have had the aid of

Ass't Prof. J. W. Clark, of whom I desire to make special mention for the progress and proficiency of the sections under his charge as shown more particularly in the results of their final examination.

Greek.—This language embraces a course of 4 years also, with a similar division into classes.

The Senior class has read portions of Homer's Iliad, with extracts from Thucydides, and has had weekly practice in Greek Prose Composition.

The Junior class has read portions of Herodotus together with portions of Xenophon's Memorabilia, and has also had weekly instruction in Composition together with daily drill in the Grammar.

The Intermediate and Academic classes were without representatives. Hence there is no work to be reported in that part of the course.

The Plan of Instruction.—Has been that usually pursued of accurate translation of the text both oral and written, with constant practice in the analysis of the language, the latter process being exemplified more particularly in the rendering of English into Latin or Greek. Some effort has been made to inaugurate a system of parallel reading, independent of the regular daily class work. This, it is believed, is practicable in the higher classes, and the intention is to make it a feature in the work of the coming year. It is desired, also, to give more attention hereafter to the History and Literature of the Languages. In this connection, I beg to renew a recommendation, made to you in another form, that this department be supplied with a set of Ancient Maps. Those by Kiepert, republished in this country by the house of Scribner, are recommended as the standard in this department. I think that the sum of one hundred dollars might be profitably expended in the equipment of this department.

Graduates.—One member of the class in Greek and three from the class in Latin have been recommended for graduation. The conduct of the young gentlemen composing my classes has been all that I could desire, a circumstance of which I wish to make special mention in closing this report.

Respectfully submitted,
C. P. ESTILL,
Prof. Anc. Lang.

REPORT OF PROFESSOR OF CHEMISTRY AND PHYSICS.

A. & M. COLLEGE, OF TEXAS. }
College Station, June 23, 1880. }

John G. James, President :

SIR : I have the honor to submit the following report of the Departments of Chemistry and Physics, and Engineering, for the session ending June 23d, 1880.

In entering upon the duties of these chairs, I received from the retiring professors a class in each of the subjects of Chemistry, Physics, Agriculture, Drawing, Physical Geography, Mechanics, and Engineering. A revision of the general schedule which soon followed made it necessary to suspend Drawing, and the class in Physical Geography was assigned to the Professor of English. Subsequently it was returned to my charge and has completed, with proficiency, Maury's Text.

When the class in Agriculture reported to me I found them using a text book necessarily involving discussions, which presupposed a general knowledge of elementary Chemistry and Physics. This knowledge they had never acquired in any degree, and I deemed it injurious and absurd that they should continue the study in such a way. Upon my advice they dropped it.

The class in Physics has completed a course sufficient for the purposes of any but special students. During the review experimental illustrations have been presented and certain topics enlarged by explanations and readings. The experimental exercises have not been as complete and systematic as was desirable, from the fact that the apparatus was not received from the maker till late in the session, and there was no time afforded for setting it up and properly arranging it for most effective use. A few pieces were broken and had to be returned to the maker. In spite of this, however, the illustration of no important principle has been omitted, and even the small part of the apparatus which was not in good working order has been explained and exhibited to the class. The same remarks apply in some degree to the chemical apparatus. The chemicals did not arrive until the middle of February, by which time the class had finished the text book and commenced to review it. In the course of this review many experiments were performed in the presence of the class, but proper system in the presentation of these was impossible from the fact that I had to arrange apparatus for special illustrations at such odd times as I could with difficulty spare from unusual duties then pressing. While waiting for chemicals the class had been

very profitably employed in Theoretical Chemistry. Upon completing this they were introduced to practical work in the Laboratory. In something less than three months they have become to a useful degree familiar with the general manipulations of elementary qualitative analyses, and, as the result of their whole course in this department, they have now a knowledge of the leading principles and facts of Inorganic Chemistry, together with sufficient practice to enable them to use intelligently the blowpipe, to produce and distinguish ordinary precipitates, to determine specific gravity, and to identify the common metals and their salts. I am aware of the incompleteness of this course; but it is much to have been accomplished in so short a time. In the Laboratory they have had only the usual one hour each day, and that only four times a week. They have, however, frequently remained at work after academic hours.

I regret that no time has been found for even an outline course of Organic Chemistry, though the students are prepared to read privately with ease and profit whatever may be desirable as a part of a general education in this direction.

As much time as could be spared from teaching has been given by me to receiving and arranging apparatus. An order amounting to about \$1400 had been sent by my predecessor. Of this it was found necessary to return \$205 worth. Subsequent orders have been made with reference to the strictest economy and the absolute needs of a working Laboratory. I have declined to receive any piece of apparatus not of the best quality.

We are now prepared for any work falling within the sphere of usefulness of this College as the headquarters of scientific study in this state. Of course there is a vast field of investigation for which our appliances would be wholly inadequate, such for example as that opened in the discussion of chemical constants, molecular relations and numerous other subjects requiring for their study appliances and facilities obtainable only in the great centres of mechanical skill. But such work does not fall naturally or economically within our province and there is abundant room for great usefulness and reputation for this institution in the pursuit of aims for which it is well equipped.

The class in Civil Engineering has completed a course of higher Surveying and Topography and Mahan's Text. From want of models or shops the instruction has necessarily been theoretical simply. The class is proficient as far as they have gone.

The class in Mechanics has completed Peck's Text. The subject of Geology was taken up and finished by a class during the last term. The examination took place during the session and was oral.

The general conduct and discipline of classes has been admirable.

For more detailed exhibits of the course accomplished by the various classes, I refer to examination papers herewith submitted.

H. H. DINWIDDIE,
Professor of Chemistry and Physics.

REPORT OF PROFESSOR OF MODERN LANGUAGES.

A. & M. COLLEGE OF TEXAS, }
College Station, Texas, June 23, 1880. }

John G. James, President:

SIR: I have the honor to submit the following report of the Department of Modern Languages for the session just closed:

When I entered upon my duties in November last, I found the different classes constituting this Department so deficient that I deemed it an act of prudence to start the Freshman classes from the very elements, and to take the Sophomore classes once more over the entire Grammar which some of them had not even completed at the time they began to read the German and Spanish classics.

Had circumstances allowed me to re-arrange the classes according to the students' knowledge of the subject, (the custom seems to have prevailed in this Department to advance any one no matter how deficient he might be to a higher class at the close of the session), the difficulties of pursuing a uniform course of instruction would not have been as numerous.

Nevertheless, I am gratified to say that the students have seldom given me cause for complaint, that most of them have labored diligently and faithfully, and that after one and two years' instruction I should not hesitate to graduate them, since I am confident that they would reflect credit upon the institution, not only being able to read and translate with facility, but also to converse with the representatives of the respective tongues, and this should be one of the main objects in the instruction in the modern languages.

The number of students at the time I took charge of this Department was very limited, viz:

Freshman German, 10; Sophomore German, 3; Freshman Spanish, 6; Freshman French, 1. Total, 23.

And although some of the students left this institution at the

close of the year 1879, there are still the same number at present, distributed into the different classes as follows :

Freshman German, 12; Sophomore German, 4; Freshman Spanish, 2; Sophomore Spanish, 4; Freshman French, 2. Total 24.

The text-books as selected by my predecessor have not been changed, though a change would for various reasons have been desirable, and all the studies as laid down in last year's programme have been minutely carried out, except that in the Sophomore German Adler's Progressive German Reader has been substituted for Lessing's *Minna von Barnhelm*, which drama I considered entirely too difficult for the students' advancement and mental training.

The following are some outlines of the method of teaching which have been followed in this Department: In the freshman classes which all students entered without any preparation, the time was completely occupied in the purely linguistic instruction with largely oral, and as far as the time permitted, conversational exercises. Each day the recitations were upon some portions of the text books, and twice a week a written translation of some lesson, previously recited in the class room, was required, the errors of which being only indicated by me were to be corrected by the students. At the close of each week there was a dictation exercise in translating English into the respective languages which embraced all the rules previously studied. Later in the session these exercises consisted of short stories or letters, first read in a literal English translation and then dictated in the original language, and, as it was my aim from the beginning to accustom the students to the sounds and idioms of the foreign tongue, so as to gradually make it a living language to them, from time to time they were required to declaim selected pieces in the German, Spanish, or French.

In the Sophomore classes I reviewed the grammar, laying particular stress upon the theoretical part, and gave the students a series of lectures in German and Spanish. The written translations were to a large extent original compositions on subjects having been treated before in the class room. The dictation exercises consisted in writing in German and Spanish some story, letter or novel read in English, as for instance, the first chapter of Goldsmith's "*Vicar of Wakefield*," and as an aid in acquiring a facility in speaking. Declamations were continued at more frequent intervals. The students, furthermore, had each day to commit to memory a certain number of words in the language taught, with their meaning and in the class room this language was spoken as far as consistent with their advancement. The recitations were rendered as interesting as possible by lectures on

comparative philology and by means of researches in geography, history, mythology, and in biography of the different authors from whose writings selections were read. Thus, in the Sophomore German the Reader has been completed and in the Sophomore Spanish chapter 1 to 24, i. e., almost 190 pages Cervantes' "Don Quijote" have been read, starting with about one-half a page, and increasing the lesson from time to time till at last unhesitatingly I give the students two pages to prepare for one recitation.

Before closing this my report, let me, Sir, ask for a prolongation of the time heretofore given to my department, as I am desirous of making the instruction as thorough as possible. During a third year I would not allow any other language to be spoken during recitation by any student than the one pursued; the whole time would be devoted to a short synopsis of the systematic study of grammar, and to a critical reading of some more difficult master pieces in the respective languages in the class room. Besides, there would be prescribed a well defined course of parallel private reading of some standard work which would furnish the theme for original composition. In addition to this the students would have to pass through a course in scientific German, as the knowledge of German especially acquired through the aid of text books in common use in this country is without doubt inadequate to the want of the student of science who, though able to read and speak German on common topics is apt to find the greatest difficulty in reading scientific journals.

Furthermore let me call your attention to the fact that my Department has been almost entirely neglected in the selection of books for the library and of periodicals in the reading-room and I would respectfully ask that you recommend to the Honorable Board of Directors to make an appropriation for the purchase of some standard works and for the subscription to at least two scientific and literary papers in each of the respective languages.

Hoping that my efforts faithfully to discharge my duties have met with your approval, I am, sir, very respectfully,

Your obedient servant,

G. GARTNER,

Professor of Modern Languages.

COMMANDANT'S REPORT.

A. & M. COLLEGE OF TEXAS, }
College Station, June 23, 1880. }

John G. James, President :

SIR: I have the honor to forward herewith my annual report of the department of Military Science and Tactics at this College.

The Military studies and exercises have embraced Upton's U. S. Infantry Tactics from the school of the soldier through battalion drill; and with the six-pounder howitzer guns with caissons and limbers provided by the government, I have drilled thoroughly two large detachments in the school of the battery with very satisfactory results.

With the ammunition provided for the use of the Cadets, I have organized a system of target practice with their rifles, and with the field pieces salutes have been fired on appropriate occasions. A class in signaling has also been established and has made fair progress, using as text book Myer's Manual of Signals.

Since my last report an almost entire change has taken place in the Faculty of the College and also in the method of discipline. Heretofore I have been compelled to rely solely upon the cadets themselves (officers and sentinels) for the maintenance of order in the College buildings. Now Captain J. W. Clark, a graduate of the Virginia Military Institute, assists me in the duties of Commandant, and has proved of valuable aid. The arduous guard duty has been reduced to one sentinel's post.

With regard to the military feature in these Colleges, and especially this which is about wholly maintained by the U. S. Government, I would state that military discipline is absolutely indispensable.

There is no hardships involved in the short drills, and they develop the physique and improve the deportment of the Cadets.

During my term of duty here I have come to the conclusion that it is not the intention of the Government, (when according to the act of Congress "Military Tactics is included,") to require that the course of instruction should be on the plan of a purely military school, but that the chief object of these studies should be to maintain the necessary discipline and to interfere as little as possible with the more important studies, which they are sent here to be educated in.

I would respectfully recommend that a permanent basis be given to the military department, and not, as seems to be the tendency of late in some of these colleges, to gradually cut it down

until there shall be nothing left of it. Let the student understand that he is being educated, partly at least, by the General Government, and although he is not sent here to learn the whole system of Military Science, he is obliged to learn some of it, and that well, to be able to remain at the Institution. I am, sir,

Very respectfully your obedient servant,
GEO. T. OLMSTED,
Captain U. S. Army.

REPORT OF HEALTH DEPARTMENT.

A. & M. COLLEGE OF TEXAS, }
College Station, Texas, June 23, 1880. }

President John G. James :

SIR: I herewith submit my fourth annual report of the Department of Health for the collegiate year ending June 23rd, 1880:

During the month of October the health was very good and no serious cases of illness occurred till the middle of November, when several cases of typho-malarial fever suddenly developed and ran the usual protracted course, all ending in recovery except two, who were removed to their homes against my advice, and died.

The health of the corps was very good during the balance of the session, only two more cases occurring, but they likewise ended in recovery. Slight intermittent and catarrhal fevers occurred occasionally, but all did well.

The want of a suitable hospital building apart from the main barracks and free from the noise and confusion incident, has been most keenly felt, and it is hoped will soon be remedied.

The ventilation of the dormitories on the second floor is not as good as could be desired.

The want of transom lights does not permit free passage of air through them, otherwise the accommodation is satisfactory.

The water supply is of good quality and sufficiently abundant.

The amount allowed for the purchase of medical supplies (\$100) has not been sufficient, as will be seen from vouchers presented from

McKessan & Raffins, New York,.....	\$58 87
J. W. Howell, Druggist, Bryan, Texas,.....	66 10
Drayage and Cartage of Medicine to College,.....	1 20

Two bottles wine J. S. Fowlkes & Co., for Hospital,.....	1 25
Three yards of bleached domestic,.....	30
Exchange on \$100 to New York,.....	50
	<hr/>
	\$128 22

It will be seen by the above exhibit that if the patronage of the College meet our just expectations that at least \$200 should be allowed for the next year.

In regard to my duties in the Department of Biology, I beg to say that with much difficulty a class of eight was organized and text books ordered, but before work was begun the re-organization of the Faculty and the large secession of cadets left me without a class, and therefore I could not carry out the wishes of the Honorable Board of Directors.

Respectfully,

D. PORT SMYTHE, M. D.,
Surgeon.

REPORT OF PROFESSOR OF MATHEMATICS.

A. & M. COLLEGE OF TEXAS, }
College Station, June, 23, 1880. }

John G. James, President :

SIR: I have the honor to submit the following report of the work in the Department of Mathematics, since I was assigned to the discharge of its duties in November last. The classes in the department have been divided into eight sections; Capt. Olmsted has instructed one section; Aass't. Professor Clark, another, and the remaining six have been under my instruction.

The Junior Class has finished the entire Differential and Integral Calculus. In addition to the text used (Loomis), I have, from time to time given them such other demonstrations, illustrations, and practical applications, as would serve more clearly to fix upon their minds the principles of the Calculus. I have also delivered to them a course of fifteen lectures on the "Doctrine of Limits," the different methods of the great masters of Calculus, and the interpretation of Symbols. I found the Sophomore class studying Spherical Trigonometry, which subject I reviewed with them, when I discovered that they were deficient in the principles of Algebra, and therefore last January I put the class into Alge-

bra, and completed Davies' Bourdon; after which they began the study of Analytical Geometry, using Church's work, which they completed to the subject of the Cone. This class, therefore, has been examined upon Algebra, Spherical Trigonometry, and a portion of Analytical Geometry. In addition to this I delivered to the class a course of lectures on the great principles of Algebra and of Analytical Geometry.

The Freshman class has been instructed by Ass't. Prof. Clark, who has labored diligently, and given them a thorough drill in Algebra and Geometry. This class was studying Geometry when Prof. Clark assumed charge of it. He discovered that they were not thoroughly acquainted with Algebra, having only studied a very elementary work on that subject, and therefore, after consultation they were also required to go over the entire Algebra, using the same text as the Sophomore class.

The Second Academic class, I found studying "Olney's Introduction to Algebra," which I soon discovered was a bare introduction; so in February, I discontinued the use of that text book, and substituted Davies' Bourdon, which they have completed to Quadratic Equations. The result has proven the wisdom of the change, for this class submitted better papers on examination than any other in the entire department. The class was at first divided into two sections, but in March last, I found it necessary to form a third section, composed of the best prepared members; this section only completed Equations of the first degree.

The First Academic class was in one section under the instruction of Capt. Olmsted. In February, I divided the class into two sections, taking charge myself of the first, and leaving the second section under his charge. His section has continued the study of Olney's Arithmetic during the entire session. My section finished the Arithmetic in March, when I discarded the text, and instructed them, during the remainder of the session, by means of written exercises, embracing the whole of Arithmetic, which I placed upon the board, and required them to copy in note-books. I also gave them each day problems involving the different rules and principles of Arithmetic. These exercises were seventy-five in number. With the exception of the Algebra and Analytical Geometry, I have continued the use of the text, which I found in the department. I have however, as you know, in my report submitted to you in April last, recommended an entire change.

I take pleasure in reporting that, with a few exceptions, the students in this department have worked diligently, and the progress has been very satisfactory.

It has been my aim to impress upon the minds of the students, that Mathematics is not a subject of faith, but that every princi-

ple and rule should be rigidly demonstrated, before they are at liberty to apply it to the solution of examples and problems. I have, therefore, paid especial attention to a thorough drill in the principles and their demonstration, calling their attention to the importance of Mathematics as an aid in the development of the intellectual faculties, more particularly reasoning and judgment, as well as to its use in its applications to the practical affairs of life, and to its necessity as a means of investigating the laws of nature. My method of instruction has been more fully submitted to you in my report of April 1st, last.

There are now in all classes in this department seventy-two students, eleven of these are studying two branches of Mathematics, making the actual number sixty-one.

The department is supplied with no apparatus with which to illustrate the different principles, and as I deem it very desirable to present to the eye, the different mathematical figures, so that their properties may be more readily understood, I would respectfully ask, that you recommend to the Honorable Board of Directors, that an appropriation be made to purchase the necessary models and mathematical instruments. I think that at least five hundred dollars (\$500) can be utilized for this purpose.

I would also ask for an appropriation for the purchase of the standard works of reference in this department for the library, as it was almost entirely neglected in the purchase with the last appropriation.

Recognizing the stimulus to exertion which is produced by rewards, and desiring to raise it to the high standard which its importance warrants, I propose, with your approval and that of the Honorable Board of Directors, to offer a gold medal, to be awarded annually to that student of the Sophomore or Junior class, who shall submit the best examination paper.

As to the kind of examinations required of students in this department, I would respectfully refer you to the examination papers, herewith submitted.

In conclusion, allow me to thank you for your uniform kindness, courtesy, and support, accorded to me during the session. Hoping that my labors have met with your approval, and have also been of benefit to the young gentlemen under my instruction, as well as promoted the welfare of the College, I am, sir,

Very respectfully your obedient servant,

LOUIS L. McINNIS,

Acting Professor of Mathematics.

LIBRARIAN'S REPORT.

A. & M. COLLEGE OF TEXAS, }
College Station, Texas, June 23, 1880. }

Col. John G. James :

SIR : I have the honor to submit the following report upon the condition and needs of the Library :

CONDITION.

The Library now comprises the following works :

- I. History—The Works of Macauley, Schiller, Bancroft, Hallam, Thiers, Hildreth, Van Haltz, Knight, Hume, Gibbon, Motley. Green, Prescott, Grote, Arnold, Curtius, Thirlwell, and many others, making a total of 269 volumes.
- II. Biography—Sparks, Morley, Lodge, Irving, Prescott, Parton, Curtis, and others, 106 volumes.
- III. Reference—Greek, Latin, French, Spanish, German and Italian Lexicons, Webster's and Worcester's Dictionaries, Encyclopedias, (American, Americana, and Chambers'), Biographical Dictionary, &c., 74 volumes.
- IV. Natural Sciences, including Agriculture, Physics, and Astronomy, Meteorology and Physical Geography, Botany, Geology, Zoology, Chemistry, &c., 171 volumes.
- V. Engineering and Mechanics, 8 volumes.
- VI. Mathematics, 17 volumes.
- VII. Poetry, (most of the standrrd poets) 45 volumes.
- VIII. Histories of Literature and Criticism, 38 volumes.
- IX. Law—Governmental Science and Political Economy, 65 vols,
- X. Mental and Moral Philosophy, 48 volumes.
- XI. Modern Languages, 10 volumes.
- XII. U. S. Public Documents, 132 volumes.
- XIII. Public Documents of the State of Texas, 18 volumes.
- XIV. Miscellaneous Works, 76.
- XV. Ancient Langnages, 5 volumes.

Total number of volumes in the Library, 1090.

In addition there are pamphlets, monthly reports from Department of Agriculture, &c., 300.

Total books and pamphlets, 1390.

NEEDS.

You will see from the above statement that the Library is very

deficient in some departments, notably, Mathematics, Engineering and Mechanics, General Literature, including the standard Essays and Miscellaneous Works, and Ancient and Modern Languages.

In mathematics there are no works of reference—simply a few text-books. In Engineering, Applied Mathematics, and Mechanics, the deficiency is almost the same. In general literature there are not more than a dozen volumes of the standard authors. And the library of the College in the modern languages consists of ten volumes, and in ancient languages, of five volumes. I would respectfully urge that you recommend to the Honorable Board of Directors to make an appropriation to supply these deficiencies.

While the library is complete in no department, yet in most there is a well selected nucleus, around which we may accumulate a great assistant in our efforts to impart sound education to the youths of Texas.

REGULATIONS.

I have opened the library for two hours on every Saturday morning, at which time all students in the College have free access, and are permitted to draw such books as they may select. The works of reference are to be consulted only in the library hall. Fines are imposed for any breach of the regulations, and moneys thus received are used to defray the incidental expenses.

I do not report the list of accessions during the current session from the fact that with a small exception, the whole library is an accession.

The apparatus for the complete classification and cataloguing of the entire library arrived only a few days since.

It is my purpose to spend two weeks of the vacation in arranging, labelling and cataloguing the library.

READING ROOM.

In January last there was established in connection with the library a reading room. This room is open every day, when all persons connected with the College have access the periodicals on file.

The following Journals and Periodicals are now on file :

American Journal of Science and Art, Nature, Quarterly Journal of Pure and Applied Mathematics (British), Canadian Monthly, (Canada), Popular Science Monthly, United Service Magazine, Scribner's Monthly, Harper's Monthly, Lippincott's Monthly, North American Review, Leslie's Sunday Magazine Southern Historical Papers, Engineering, (Weekly, British), Chemical News, (Weekly, British), Agricultural Gazette, (Weekly,

British), Moore's Rural New Yorker, Prairie Farmer, Massachusetts Ploughman, (donated), The Industrialist, Farmers' Review, (donated), Texas Farm and Orchardist, (donated), London Weekly Times, Scientific American, The Nation, Puck, Harper's Bazar, Harper's Weekly, New York Tribune, Philadelphia Times, Louisville Courier Journal, New York Graphic, New York Sun, (donated), Brazos Pilot, (donated), New England Journal of Education, Southern Churchman, (Episcopal), Christian Observer, (Presbyterian), Religious Herald, (Baptist), Christian Advocate, (Methodist).

I would respectfully recommend that this portion of the Library be enlarged in the number of Magazines and Reviews, while I think the number of Political Journals could, without injury, be diminished.

CIRCULATION.

No. of books &c. drawn by members of Faculty, 550. No. of books &c. drawn by Students, 594.

I am glad to report that the Library is much appreciated by the Students and they seem to realize the great privileges and advantages which it offers.

I propose during the next session to deliver, with your approval a short course of Lectures on Reading—what to read and how to read—the proper use of books &c.

I find that many young men are very desirous to read without knowing what or how to read. Of course the greater portion of a student's time should be occupied in the study of his text books, but while pursuing his studies, and thereby strengthening and developing his intellectual powers, he will find that he has many golden moments, which, unless utilized in reading, will be passed in idleness. Since entering upon the discharge of the duties of Librarian, I have given the subject much study, and therefrom, I am more and more convinced that *this* is one of the most important departments of the college, and that a proper discharge of its duties is much more than the simple mechanical work, of giving out and receiving books.

During the present session, the arduous duties of my chair have permitted me to do little more than this, yet I shall be able next session, I hope, to discharge the duties of Librarian more successfully, since, before the opening of the next session, I shall have arranged and classified the entire Library. I hope, however, that the condition and management of the Library may meet with your approval.

I am, sir, very respectfully,

LOUIS L. McINNIS,
Librarian.

MESS-HALL REPORT.

A. & M. COLLEGE OF TEXAS, }
 College Station, June 23, 1880. }

John G. James, President :

I have the honor to make the following report in regard to the Mess-hall.

The efficiency and economy of this department will be promoted greatly by making the following improvements :

Brick Storeroom and Cellar, 40x24 feet,	\$1500.
Bakery enlarged and Oven remodelled &c.,	301.
Brick Cistern, 16x16,	200.
Mess-hall painted inside,	125.
Slop sewer, 100 feet long,	40.
Two pumps; kitchen and dining room utensils,	200.

Total estimate,

\$2366.

The brick storeroom and cellar are very badly needed in order to keep our supplies of meat, milk, vegetables, &c., fresh and sweet. They will also give room for storing away the large quantities of vegetables such as irish and sweet potatoes, cabbages &c., raised upon the farm, as well as our homemade pickles and krout, of which large quantities have been made this year.

The bakery needs enlarging and repairing; the oven is now unfit for use and must be rebuilt before the next session opens.

The brick cistern is much needed on account of our department being constantly out of water, except this year, which has been due to our small attendance, and unusually good rains.

The interior of the mess-hall has not been painted since the college was built, and its appearance now is not at all attractive. The ceilings and walls should be painted this summer, and if possible inside blinds be put to the east windows.

It would be very beneficial to the mess-hall if the farm could furnish us with milk, and also with meat. The slops from the mess-hall this year would have fattened fifty hogs.

I have received from the Farm Superintendent, Capt. E. Kellner, the following amounts of vegetables :

March,	\$12.40.
April,	42 45.
May,	37.55.
June,	28.79.
Total,	<u>\$121.19.</u>

Very respectfully,

B. SBISA,
 Steward.

FARM SUPERINTENDENT'S REPORT.

A. & M. COLLEGE OF TEXAS, }
 College Station, June 23, 1880. }

John G. James, President.

SIR: I have the honor to submit this my first annual report of the operations of the department under my charge, with some suggestions for the future management, and hope that the same will meet your approval, and that of the Board of Directors.

On July 11th, 1879, I arrived at the College, and went to work with the laborers to save some fodder and hay. A corn crop was not made last year. There was only a small area under the plow, and the place overrun with weeds.

In the fall I sowed some seventy acres in wheat, rye, barley and oats. The frost at Christmas, 1879, killed nearly all of it. Only $5\frac{1}{2}$ acres of oats I have harvested, which had rusted badly. The rye, being also badly rusted, I plowed under, and I now have a fine field of millet on the rye land. The wheat and barley I had received from the Department of Agriculture at Washington.

I planted potatoes very early, before Christmas, because the seed potatoes received from Philadelphia took the dry rot. The frost of March 13th (when the potatoes bloomed fine), cut them down, and we only harvested two barrels of small potatoes, which were consumed at the mess hall. The balance of the potatoes I have planted February 9th, the common day of potato planting in Texas. The potatoes rotted mostly in the ground the beginning of this month, except seven or eight barrels. I planted some potatoes the middle of April, which promise a fair yield.

Onions, about twenty bushels, rotted in the ground, on account of the immense amount of rain, and the heat afterwards.

I recommend the laying of drains. The substratum of clay does not allow the rainwater to sink down.

The potatoes I have manured with super-phosphate of lime, bone meal, and a compost of burnt bones, horse-manure and ashes. The latter gave the largest yield. The garden has supplied the mess hall with an abundance of vegetables, and has been appreciated by the cadets.

Of corn I planted 9 varieties, of which the "Golden," from Pulaski, Illinois, seems to be the most promising. This corn was sent here by his excellency, Governor O. M. Roberts. The following experiments have been made: I subsoiled for some of it, some of it used super-phosphate of lime, bone meal, cotton seed meal,

horse-manure and ashes on. The result of these experiments is not known so far.

The corn was partly killed by the frost 13th of March, and rotted afterwards in the ground. Two-thirds of the corn I had to replant, causing extra labor.

Of cotton I planted seven acres, which does not promise much, but will pay for the labor expended. Causes are poor soil and weedy lands.

SUGAR CANE.—I have planted the Amber cane received from the Department of Agriculture at Washington. There will be sufficient cane to manufacture into molasses a small barrel. Cane should be planted to furnish the mess hall in future with sufficient molasses for its use, as the consumption is about a barrel a month.

I have also planted some white French sugar beets, and have some fine specimens. This is a fine food for milch cows and cattle.

By a resolution of the Board of Directors, dated August 27th, 1879, I was ordered to plant the following amount of land :

“Three acres in corn ; three acres in cotton ; five acres in vegetables, to include Irish and sweet potatoes ; two for horticultural purposes, and the remainder in corn, wheat, rye, oats, hay, and such other provender as may be suitable for stock.”

I have complied with the instructions as much as possible. I have broken and reclaimed land which had never been cultivated and have cultivated all of the land fit for cultivation in the enclosure.

In corn there are planted 50 acres ; in cotton 7 acres ; in millet and Hungarian grass $8\frac{1}{2}$ acres ; in oats $5\frac{1}{2}$ acres ; in amber cane $\frac{1}{2}$ acre ; in red clover $\frac{3}{4}$ acre ; in alfalfa $1\frac{3}{4}$ acres ; in garden 4 acres ; in Irish potatoes $1\frac{1}{2}$ acre ; in sweet potatoes 3 acres ; in cabbage $1\frac{1}{4}$ acre ; in *Desmodium molle* (tickweed or beggarlice), said to be a fertilizer to the soil, and food for stock—a native plant of Texas, $\frac{1}{2}$ acre. Total number of acres planted, $63\frac{1}{4}$.

Of the one thousand apple trees planted, there are only alive 543. I have replanted the orchard with peach trees.

This year I planted 458 peach trees ; 6 plums ; 50 dwarf pears ; 6 weeping willows ; 6 Lombardy poplars ; 33 grape vines, American varieties ; 200 Black Spanish cuttings (donated by J. Landa, Esq., of New Braunfels) ; 16 figs, different varieties. Specimen hedges of *cyonothus*, or California privet, also English privet, *China arbor vitæ*, golden *arbor vitæ*, and different shrubs.

Of native forest trees, I planted 82 hackberries, of which one-third grew ; the cause of their not growing is attributed to the careless manner in which the person who took them up handled the roots.

Of the peach trees, 3 per cent. have died ; of the pears, none ;

of the grape vines, only 3 vines; of the grape cuttings, 25 per cent.

Of the remaining 543 apple trees, I have the following report to make: My predecessors have pursued the wrong plan. They always cut them back, and did not give the limbs a chance to form fruit buds. I have not touched them with a knife, and some of those trees will bear next year. Some few have bloomed this year. Whether those apples are proper Southern varieties, I do not know. In planting the trees this year I have dug holes and afterwards bored holes with an earth augur, so in future the tap-root can penetrate the soil easier. The planting of a peach orchard say of 20 acres, would be a source of profit in some years to the College. A vineyard should be planted, and experiments made with the different new varieties which are every year originated by artificial impregnation—mixture of foreign and native American grapes.

I am a believer in deep plowing, and also in summer fallow of land which has had oats, potatoes, or vegetables on it, as every rain brings particles of manure which the soil cannot absorb if it is lying caked and hard. Subsoiling will benefit this land.

But with all your plowing and subsoiling you must have a basis to grow your crops from, and this is manure. (The soil at the A. & M. farm is the poorest in Texas.) Artificial fertilizers are very nice—convenient to handle; but they do not at present justify the purchase. 1st. They are too costly. A ton of bonemeal at Galveston is worth \$26; freight added, about \$12 more. (They should be experimented with on a small scale for the benefit of the students.) Such as guano, dried blood, (superphosphate of lime, which can be manufactured here,) muriate of potash, nitrogen, sulphate of ammonia, and other fertilizers.

I recommend, therefore, at your suggestion, in regard to stock, animal manure, and will illustrate how it can be carried on profitably.

1. I recommend the purchase of 400 head of common Mexican sheep, which can be gradually improved by having a few blooded rams. To use the sheep as fertilizing machines, by penning them of a night in fair weather, having a portable fence to change the pen every night, and plowing under the excrements every few days to prevent the loss of ammonia.

2. The sheep can be used also to supply the Mess Hall with mutton.

3. The sheep by their wool will pay for their herding and stabling.

By judicious handling the sheep will be a great help to our lands by eating the weeds, after which a luxuriant growth of grass will

spring up. It will be necessary to build sheds for them and supply them with racks, where the sheep can be sheltered and fed on rainy and stormy days. Sheep manure is the most valuable of all manures.

Next I suggest the purchase of a dozen Texas cows—good milkers. If the means are there, I prefer blooded stock. Texas cows, if well fed and taken care of, will give a great deal more milk than people imagine. The Mess Hall at present consumes about 75cts. worth of milk per day, which is \$225 per session. By having 12 good cows you would have about 12 gallons a day, worth \$3.60, or in 9 months, as they will gradually give less milk, about \$700. Cow manure sells here at 50 cents a load. The increase could be butchered for the Mess Hall.

At present the Mess Hall uses about \$115 of meat a month. A start of hogs should be made—good breeds, as they do not need more corn than razor-backs. There is sufficient slop during the session to feed 50 head of hogs.

To do all this the farm has to be enlarged, a pasture made anyhow for the calves and cows. The sheep will have to be herded. The fencing with a wire fence will cost 50 cents per panel of 8 feet, that is labor, posts, wire and one plank. That is, where the party furnishes timber for posts; otherwise the posts can be delivered here \$7 per hundred.

One of the necessary improvements is the building of a cistern at the stable. There is too much time and extra labor of animal flesh used in going to the tank. The animals come hot and tired out of a field, and then have to travel three-fourths of a mile to water, (there and back.) This should be remedied if possible. The College owns 3 mules and 2 breeding sows, 6 shoats and 3 little ones. These animals (the hogs) I purchased from the money received from the sale of garden seeds to the professors of the College.

Very respectfully,

E. KELLNER,

Superintendent of College Farm.

WARRANTS

DRAWN BY THE PRESIDENT ON THE TREASURER OF THE AGRICULTURAL
AND MECHANICAL COLLEGE OF TEXAS, FROM JUNE 23, 1879,
TO JULY 1, 1880.

No. 450	Dr. D. Port Smythe, \$	166 66	No. 7	Dallas Herald.....	15 25
1	S. E. Ritchey,.....	83 17	8	J. S. Fowlkes & Co.	378 74
2	Cadet Jeff Davis....	8 00	9	Insurance Oil Co....	35 40
3	Cadet W. R. Smith....	38 25	510	H. L. Spain.....	8 50
4	Cadet Leroy Davis..	4 00	511	Jno. C. Crisp.....	20 55
5	Delilah Humphreys..	104 50	12	P. Robenson.....	618 00
6	Esther Chapman....	36 00	13	Fred Roehl.....	52 50
7	Wade Hamilton....	40 00	14	Peter Winters.....	7 00
8	J. W. Howell.....	103 48	15	Julius Paris.....	17 06
9	J. S. Fowlkes & Co.	508 90	16	E. B. Pugh.....	18 87
460	M. Adams.....	32 00	17	C. S. Miller.....	11 50
1	T. Musil.....	15 00	18	T. J. Gray.....	120 00
2	B. Sbisa.....	529 53	19	T. J. Gray.....	6 87
3	F. Caneras.....	153 10	520	Garth & Griffiths....	34 52
4	W. E. Tabor.....	27 60	1	J. W. Tabor.....	15 30
5	W. E. Tabor.....	208 04	2	S. A. Hare.....	17 00
6	Maverick, Wissinger	43 50	3	G. H. Dugan.....	30 00
7	H. C. Edrington....	4 75	4	F. A. Calhoun.....	30 00
8	J. H. Suber.....	10 00	5	P. Robenson.....	545 00
9	S. T. Kane.....	25 00	6	S. E. Ritchey.....	175 30
470	Wm. Redding.....	5 85	7	Dem. Statesman.....	30 00
1	Caldwell & Morris..	11 00	8	Houston Telegram..	24 75
2	P. Robenson.....	21 50	9	H. C. Edrington....	12 70
3	Dr. D. Port Smythe	166 66	530	L. J. Kopke.....	20 00
4	C. P. B. Martin.....	15 00	1	Galveston News....	51 90
5	T. J. Gray.....	25 00	2	R. C. Chatham.....	17 00
6	B. E. Bee.....	10 00	3	(skipped).....	
477	(mistake).....		4	W. A. Fort.....	30 00
8	(mistake).....		5	F. W. Fort.....	30 00
9	C. P. B. Martin.....	15 00	6	Smith & Huckabee..	265 27
480	A. H. Belo & Co....	40 80	7	T. J. Gray.....	125 00
1	B. E. Bee.....	20 00	8	W. Koppe.....	734 10
2	E. B. Pugh.....	33 52	9	W. Redding.....	12 00
3	B. E. Bee.....	70 00	540	Searcy Baker.....	17 00
4	R. L. Nichols.....	43 49	1	D. P. Smythe.....	112 00
5	(mistake).....		2	C. C. Saunders.....	3 80
6	C. P. B. Martin.....	15 00	3	Jno. Schneider.....	15 00
7	R. F. Jones.....	20 25	4	E. B. Pugh.....	37 50
8	Max Fricker.....	75 00	545	Jno. Roehl.....	44 25
9	R. K. Hill.....	64 00	6	Fred Roehl.....	20 00
490	J. Malone.....	15 00	7	Paul Carlieners....	17 00
1	T. S. Gathright.....	300 00	8	C. P. B. Martin.....	15 00
2	T. S. Gathright.....	69 75	9	M. Adams.....	50 66
3	H. Lathrop.....	18 00	550	Delilan Humphreys	105 33
4	W. E. Tabor.....	51 33	1	W. E. Tabor.....	25 96
5	W. E. Tabor.....	56 66	2	W. E. Tabor.....	352 98
6	J. H. Suber.....	94 00	3	J. H. Suber.....	20 00
7	Jno. Roehl.....	18 52	4	H. Stinnett.....	17 00
8	Wooten & Williams	5 97	5	Summers.....	15 00
9	R. R. Royal.....	3 15	6	L. J. Kopke.....	10 00
500	J. H. Juber, Jr.....	6 00	7	E. B. Pugh.....	32 40
1	W. M. Summers....	32 00	8	J. S. Fowlkes & Co.	493 95
2	W. Redding.....	35 00	9	B. Sbiza.....	473 88
3	D. Port Smythe.....	100 00	560	P. L. Downs.....	30 00
4	C. P. B. Martin.....	15 09	1	W. J. Moore.....	5 00
5	J. Burta.....	3 00	2	State Gazette.....	15 00
6	Chas. Erhardt.....	13 50	3	S. E. Ritchey.....	247 72

FOURTH ANNUAL REPORT

4	College Seal	11 25
5	P. Robenson.....	514 00
6	Texas Collegian....	10 00
7	S. Winston.....	10 00
8	Bryan Postoffice....	7 03
9	H. L. Spain.....	4 84
570	Wooten & Williams	6 15
1	M. Strickland.....	13 65
2	K. M. Van Zandt....	23 00
3	J. C. McLemore.....	17 00
4	T. S. Gathright.....	2060 00
5	T. E. Blakemore.....	17 00
6	Jno. C. Crisp	12 75

Total of Pres. Gathright's... \$12023 61

DRAWN BY PRESIDENT JAMES.

No. 577	R. A. Brantley.....	\$ 32 60
8	C. D. Lane.....	22 33
9	J. B. Harris	30 14
580	W. A. Darby	15 24
1	A. D. Bell	18 24
2	B. J. Parker.....	24 24
3	Maria Adams.....	50 66
4	Delilah Humphreys	106 66
5	W. E. Tabor.....	180 05
6	S. W. McCall.....	12 00
7	W. G. Morrison	24 24
8	M. Black, Jr.....	18 24
9	R. L. Boren	17 54
590	Prof. Jno. T. Hand.	145 00
1	Prof. W. A. Banks..	103 13
2	Dr. D. P. Smythe...	112 00
3	C. D. Parker.....	17 24
4	S. E. Richey.....	153 50
5	Prof L. M. Lewis..	103 00
6	Jno. Schneider.....	15 00
7	Fred Roehl.....	20 00
8	Paul Carlienerts...	6 00
9	Joseph Gathlit.....	13 50
600	J. H. Suber.....	20 00
1	Jno. Roehl.....	45 15
2	L. T. Bennett	30 00
3	R. P. W. Morris....	75 00
4	L. Blakemore.....	18 00
5	T. M. Price.....	18 00
6	P. Robenson.....	528 00
7	J. S. Arrington....	5 00
8	T. S. Gathright....	305 63
609	A. T. Evers.....	25 50
610	A. Talbot.....	17 00
11	F. Talbot.....	30 00
12	C. P. B. Martin....	15 00
13	L. J. Kopke.....	17 00
14	C. F. Shindler.....	38 47
15	J. Gathlitz.....	3 00
16	A. H. Alford.....	13 47
17	G. A. F. Parker....	13 00
18	B. Sbiza	433 69
19	F. Waters	14 93
620	Brazos Pilot.....	4 00
1	J. S. Fowlkes & Co.	193 92
2	T. E. Thompson....	7 96
3	S. A. Hare.....	15 00
4	E. Kellner.....	28 00
5	T. E. Blakemore....	15 00
5	G. H. Dugan.....	20 00

6	John Schneider.....	5 50
7	P. Carlienerts.....	11 00
8	Thos. Gray.....	31 50
9	L. R. Davis.....	5 00
630	S. E. Ritchey.....	117 60
1	S. W. McCall.....	12 00
2	John Roehl.....	29 60
3	Fred Roehl.....	21 00
4	J. H. Suber.....	20 00
5	R. W. Guyler.....	17 00
6	Tabor.....	73 00
7	Alex Hogg.....	124 35
8	E. Kellner.....	30 50
9	Burnitt & Bro	24 55
640	Dr. D. P. Smythe...	50 00
1	Delilah Humphreys	42 00
642	Maria Adams.....	34 00
3	M. Strickland.....	8 85
4	Milby & Porter.....	374 00
5	Cadet Raley.....	42 37
6	Cadet Hill.....	44 37
7	E. B. Pugh.....	3 71
8	P. Robenson.....	100 00
9	Insurance Oil tank co	35 50
650	B. Sbisa.....	284 82
1	Dr D. P. Smythe...	50 00
1	Tabor.....	16 90
2	A. S. Barnes & Co..	9 35
3	E. Littlefield.....	13 00
4	J. W. Howell.....	23 55
5	John G. James.....	48 00
6	P. Robenson.....	183 00
7	J. H. Davis.....	17 00
8	R. Hanna.....	7 62
9	C. Sandidge.....	7 00
660	W. Hendricks.....	30 05
1	W. J. Bryan.....	21 25
2	Pinckney Downs...	35 24
3	A. Reif.....	6 38
4	J. F. Sharp.....	30 00
5	P. Robenson.....	60 00
6	Insurance oil tank co	36 00
7	W. L. McConnico...	10 40
8	O. H. P. Wood.....	12 60
9	Galveston News....	34 20
670	—Pritchford.....	25 05
1	Cadets Houston and	
	Winston	24 00
2	—Bledsoe.....	10 00
3	John G. James.....	102 50
4	Maria Adams.....	30 67
675	Delilah Humphreys	41 66
6	S. E. Ritchey.....	128 30
7	Dr. D. P. Smythe...	124 00
8	John Roehl.....	32 20
9	M. Bonneville.....	72 66
680	O. H. P. Minturn...	51 00
1	B. Sbisa.....	231 98
2	J. S. Fowlkes & Co..	215 00
3	J. S. Fowlkes & Co	2 45
4	Insurance oil tank co	33 22
5	J L Peeler.....	30 00
6	John G James.....	6 80
7	J W Furrh.....	17 00
8	A S Barnes & Co....	75 04
9	C W Robinson.....	5 00
690	Delilah Humphreys	45 33

No. 1	Maria Adams.....	36 67	No. 3	John Roehl.....	71 35
2	Dr D P Smythe.....	112 00	4	John G James.....	160 00
3	John Roehl.....	28 07	5	Dr D P Smythe.....	122 00
4	Ritchey.....	125 80	6	Ritchey.....	155 00
5	E B Pugh.....	38 50	7	Milby & Porter.....	523 39
6	P Robenson.....	47 00	8	P. Robenson.....	8 00
7	John G James.....	152 00	9	Fowlkes & Co.....	29 00
8	Milby & Porter.....	104 25	740	B Sbisa.....	234 73
9	Wm Koppe.....	24 45	1	Tex lamp and oil co	34 90
700	Wm Koppe.....	38 75	2	M Bonneville.....	88 42
1	M Bonneville.....	94 1	743	J Robinson.....	20 77
2	B Sbisa.....	262 80	4	Milby & Porter.....	77 60
3	P Robenson.....	30 00	5	Jeff Mitchell.....	12 00
4	Arrington.....	3 50	6	Maria Adams.....	10 00
5	J H Robinson.....	5 00	7	M Rogers.....	9 50
6	N H Shaw.....	15 00	8	Fred A Rice.....	91 92
7	John G James.....	10 50	9	Deliah Humphreys	48 55
8	Book-store.....	122 50	750	Maria Adams.....	27 25
709	J S Fowlkes & Co..	287 00	1	Dr D P Smythe....	112 00
710	Insurance oil tank co	35 21	2	Expense act.....	153 50
11	Postmaster at Bryan	57 03	3	S E Ritchey.....	115 72
12	J R Fisk.....	2 50	4	John Roehl.....	79 77
13	C W Robinson.....	5 00	5	M Bonneville.....	36 75
14	A J Procellar.....	1 50	6	A & M C of Tex....	12 65
15	Milby & Porter.....	43 15	7	J S Arrington.....	40 92
16	Maria Adams.....	37 33	8	Book-store.....	70 08
17	Delilah Humphreys	50 00	9	Wm Koppe.....	35 10
18	Dr D P Smythe.....	112 00	760	Frank Stanley.....	4 42
19	Smith & Huckabee	28 75	1	B Sbisa.....	263 33
720	M Strickland.....	79 88	2	Routt.....	6 62
1	Ritchey.....	127 44	3	H H Dinwiddie, Tr.	2 75
2	John Roehl.....	34 62	4	Sundries.....	57 20
3	John G James.....	153 75	5	W M Crisp.....	23 12
4	M. Bonneville.....	88 57	6	C S Miller.....	6 58
5	J S Fowlkes & Co ..	282 58	7	J R Fisk.....	15 00
6	Galveston News....	3 00	8	H H Dinwiddie, Tr.	125 00
7	B Sbisa.....	235 78	9	Rev J W Neil.....	45 00
8	E B Pugh.....	7 90	770	H C Edrington.....	218 32
9	Joe Davis, jr.....	18 72	1	H H Dinwiddie....	16 32
730	C Sandidge.....	3 00			
1	Maria Adams.....	36 66		Total of Pres. James'....	12842 69
2	Delilah Humphreys	48 00		Aggregate of warrants..	\$24866 30

PROPOSED CURRICULUM OF FOUR YEARS.

FRESHMAN CLASS.

First Term.—Arithmetic; English Grammar; Descriptive Geography; Drawing,—Maps, Charts, Figures; Declamations and Compositions; Practical Agriculture; Elocution and Spelling; Latin (optional); Military Tactics.

Second Term.—Algebra; Physical Geography; History of U. S.; Drawing,—Topographical, Landscape, Charts; Declamations and Compositions; Practical Agriculture; Elocution and Spelling; Military Tactics.

SOPHOMORE CLASS.

First Term.—Geometry; German; Agriculture, its history, literature, varieties; soils; reclamation of lands; prepar-

ation for crops, &c.; Mechanical Drawing; General History; Physics and Chemistry; Declamations and Compositions; Mechanics, Shop Instruction, Practical Horticulture, Garden Culture; Latin and Spanish, (optional); Military Tactics.

Second Term.—Trigonometry; Surveying and Leveling; German; Physics and Chemistry; General History; Declamations and Compositions; Mechanical Drawing; Agriculture, cultivation and succession of crops, subsoiling, drainage, manures, &c.; Mechanics, vise and forge shop instruction; Horticulture, orchard; Latin and Spanish, (optional); Military Tactics.

JUNIOR CLASS.

First Term.—Analytical Geometry; German; Botany; Agricultural Chemistry; Agriculture, mechanical principles of farm implements, breeding, rearing and feeding of animals, forestry, &c.; Drawing, original designs for machines and structures; Mechanics, principles of mechanism, and their application to machinery; heat as a source of power, steam and hot air motors, shop instruction in steam wood-working machinery; Monthly Essay; Rhetoric; Practical Horticulture, budding, grafting, hybridization, &c.; Military Tactics.

Second Term.—Descriptive Geometry and its Applications; German; Comparative Anatomy and Physiology; Logic; Analytical Chemistry; Drawing, original plans, &c.; Agriculture, dairy husbandry, special crops, farm engineering, bee-keeping, &c.; Mechanics, hydraulic motors, wind-mills, reservoirs, shop instruction in steam metal-working machinery; Horticulture, diseases of fruit trees, grapes, &c.; Monthly Essay; Military Tactics.

SENIOR CLASS.

First Term.—Civil Engineering, resistance of material, stability of walls and arches, canals, roads, railroads; Political Economy; English Literature; Veterinary Science, anatomy and materia medica; Experimental Agriculture and Horticulture; Geology; Preparation of professional memoirs; Original constructions in wood or metal in shops; German; Calculus(optional), Latin and Spanish (optional); Military Tactics.

Second Term.—Civil Engineering, road, roof, and bridge construction, location of irrigation ditches, drains, &c.; Moral Philosophy; Astronomy; Veterinary Pathology, Surgery and Practice; Experimental Agriculture and Horticulture; English Literature; Graduation Thesis; Original construction in wood or metal in shops; German, Latin and Spanish, (optional); Military Tactics.



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FIFTH
ANNUAL REPORT
—OF THE—

Agricultural & Mechanical College
OF TEXAS.

SESSION 1880-81.

POSTOFFICE AND RAILWAY DEPOT:
COLLEGE STATION, BRAZOS CO., TEXAS.
1881.

SENTINEL PRINT. BRENNHAM, TEXAS.

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1881.

PRESIDENT'S REPORT.

PRESIDENT'S OFFICE,
A. AND M. COLLEGE OF TEXAS, }
COLLEGE STATION, June 19, 1881. }

To the Honorable,

THE BOARD OF DIRECTORS:

E. B. PICKETT, - - Liberty.
GEORGE PFEUFFER, New Braunfels.
T. M. SCOTT, - - - Melissa.
C. C. WIGGIN, - - Houston.
J. G. GARRISON, - Henderson.

GENTLEMEN—I have the honor to submit the Fifth Annual Report of this College.

ACADEMIC DEPARTMENT.

The instruction has been given by the following

FACULTY.

JOHN GARLAND JAMES,
Mental and Moral Philosophy and Political Economy.

JAMES REID COLE, A. M.,
English Language, History and Literature.

CHARLES PATRICK ESTILL, A. M.
Ancient Languages.

HARDAWAY HUNT DINWIDDIE,
Physics and Chemistry.

MARIE EWALD BERNHARD GEORGE GARTNER,
Modern Languages.

D. PORT SMYTHE, M. D.,
Biology, Hygiene and Veterinary Science.

CHARLES C. GEORGESON,
Agriculture and Horticulture.

LOUIS LOWRY McINNIS, A. M.,
Mathematics.

FRANKLIN VAN WINKLE, M. E.,
Engineering, Mechanics and Drawing.

The plan of instruction prescribed by the Board at its meeting in July last, embracing two Courses of four years each—1st, Agriculture, 2d, Mechanics—as a substitute for the former system of elective studies, has been faithfully carried out, and with satisfactory results.

The two Courses branch in the Sophomore year—the Freshman year being a common preparation for both.

ROLL OF STUDENTS.

SESSION 1880-81.

Seniors.

G. H. Dugan,	-	Sherman,	-	-	Mechanics.
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Juniors.

Searcy Baker,	-	Plantersville,	-	Mechanics.
F. W. Brooks,	-	Waco,	-	do.
W. Campbell,	-	Tilden,	-	do.
C. G. Dwyer,	-	Brenham,	-	do.
J. M. Hall,	-	New Waverly,	-	Agriculture.
S. A. Hare,	-	Sherman,	-	Mechanics.
S. F. King,	-	Bell's,	-	Agriculture.
R. S. Lipscomb,	-	Grapevine,	-	Mechanics.
G. S. H. Pfeuffer,	-	New Braunfels,	-	do.
N. A. Shaw,	-	Clarksville,	-	Agriculture.
H. Stinnett,	-	Sherman,	-	Mechanics.
F. Talbot,	-	Calvert,	-	do.
J. W. Thomason,	-	Huntsville,	-	do.
D. H. Watson,	-	Brenham,	-	Agriculture.

Sophomores.

R. L. Allen,	-	Bryan,	-	-----
M. F. Armstrong,	-	Buck Horn,	-	Mechanics.
J. S. Bradford,	-	Hempstead,	-	do.
J. McL. Burford,	-	Weimar,	-	do.
D. A. Chambers,	-	Clarksville,	-	do.
W. M. Crisp,	-	Columbus,	-	Agriculture.
J. R. Cravens,	-	Haught's Store,	-	Mechanics.
L. R. Davis,	-	China Springs,	-	do.

W. B. Ford,	-	Lewisville,	-	do.
J. W. F. Furrh,	-	Elysian Fields,	-	do.
C. S. Graves,	-	Hempstead,	-	do.
A. B. Griffith,	-	Terrel,	-	do.
V. J. Long,	-	Augusta,	-	Agriculture.
C. L. L. Lauderdale,	-	Dobyville,	-	Mechanics.
S. W. McCall,	-	Austin,	-	do.
J. L. McCarty,	-	do.	-	do.
W. B. McCormick,	-	Weimar,	-	do.
E. McDaniel,	-	Waco,	-	do.
J. A. Meador,	-	Eagle Springs,	-	Agriculture.
David Rice,	-	Houston,	-	Mechanics.
R. Sawyer,	-	Dresden,	-	do.
J. B. Shaw,	-	Brandon,	-	Agriculture.
D. Smith,	-	Circleville,	-	Mechanics.
H. G. Smythe	-	A. & M. C. of T.	-	
J. S. Stewart,	-	Houston,	-	Mechanics.
A. Talbot,	-	Calvert,	-	do.
A. G. Thompson,	-	Austin,	-	do.
R. S. Vance,	-	Circleville,	-	do.
F. R. Von Bieberstein,	-	Burton,	-	do.

Freshmen.

L. B. Adams,	-	-	-	Round Top.
Frank S. Allen,	-	-	-	Bryan.
J. S. Arrington,	-	-	-	Alleyton.
S. J. Arrington,	-	-	-	do.
J. R. Astin,	-	-	-	Bryan.
Augustus Barry,	-	-	-	Iredell.
J. E. Batte,	-	-	-	Bryan.
C. P. Briggs,	-	-	-	Calvert.
C. E. Brueggerhoff,	-	-	-	Austin.
J. C. Caldwell,	-	-	-	Corpus Christi.
J. A. Calvert,	-	-	-	Franklin.
S. J. Carroll,	-	-	-	Denton.
J. T. Cole,	-	-	-	Galveston.
R. L. Cole,	-	-	-	do.
S. S. Cox,	-	-	-	Live Oak.
O. J. Crane,	-	-	-	Calvert,
J. M. Davis,	-	-	-	do.

C. C. Francklow,	-	-	-	Prairie Plains.
C. A. Freybe,	-	-	-	Galveston.
G. G. Gibson,	-	-	-	Richmond.
J. A. Gillean,	-	-	-	Dresden,
B. McC. Good,	-	-	-	Dallas.
W. F. Gray,	-	-	-	Calvert.
F. T. Greenwood,	-	-	-	Austin.
R. W. Guyler,	-	-	-	Bovine Bend.
C. A. Haden,	-	-	-	Dresden.
L. B. Hall,	-	-	-	Bryan,
P. K. Hammond,	-	-	-	Hempstead.
E. Hawkins,	-	-	-	Daingerfield.
C. F. Heinatz,	-	-	-	Bagdad.
Abe Josey,	-	-	-	Luling.
Alexander Kaiser,	-	-	-	Fort Worth.
A. L. B. Keene,	-	-	-	Crockett.
O. Kennedy,	-	-	-	Mexia.
B. E. Knolle,	-	-	-	Industry.
E. C. Laas,	-	-	-	Shelby.
N. J. Llewellyn	-	-	-	West Falls.
J. C. Llewellyn,	-	-	-	do.
J. T. London,	-	-	-	Corsicana.
O. Loving,	-	-	-	Gertrudes.
J. A. Manning,	-	-	-	Bellville.
R. Martin,	-	-	-	Hearne.
C. T. Matkin,	-	-	-	do.
D. McLean,	-	-	-	Augusta.
H. J. Miller,	-	-	-	Bellville.
A. H. Millican,	-	-	-	Brazoria.
C. Mitchell,	-	-	-	Bryan.
L. J. Mitchell,	-	-	-	Cold Springs.
J. D. Morrow,	-	-	-	Calvert.
W. E. Moseley,	-	-	-	Jefferson.
J. W. Moss,	-	-	-	Henderson.
W. A. Muckle,	-	-	-	Plantersville.
James Pearce,	-	-	-	Oak Grove.
A. J. Peeler,	-	-	-	Austin.
Lee Peeler,	-	-	-	do.
L. Person,	-	-	-	Fulton, Ark.
H. L. Pickett,	-	-	-	Liberty.

D. C. Ragsdale,	-	-	-	-	San Marcos.
H. L. Robb,	-	-	-	-	Trinity.
C. W. Robinson,	-	-	-	-	Cold Springs.
Lee Robinson,	-	-	-	-	do.
Moran Scott,	-	-	-	-	Gainesville.
Carter Sessions,	-	-	-	-	Bonner.
E. S. Smythe,	-	-	-	-	A. & M. C. of T.
G. V. Spann,	-	-	-	-	Brenham.
S. K. Spann,	-	-	-	-	do.
A. L. Steel,	-	-	-	-	Fort Worth.
D. L. Steele,	-	-	-	-	Elysian Fields.
W. T. Stewart,	-	-	-	-	Gertrudes.
W. H. Stoner,	-	-	-	-	Victoria.
R. E. Swanson,	-	-	-	-	Houston.
J. Talbot,	-	-	-	-	Calvert.
W. P. Talbot,	-	-	-	-	do.
S. T. Tooke,	-	-	-	-	Weimar.
J. B. Towns,	-	-	-	-	Madisonville.
W. L. Tuller,	-	-	-	-	Galveston.
E. W. Voelkel,	-	-	-	-	Shelby.
A. O. Watson,	-	-	-	-	Brenham.
J. M. Wesson,	-	-	-	-	Navasota.
M. S. Westbrook,	-	-	-	-	Mastersville.
N. M. Williams,	-	-	-	-	Winchester.
S. J. Winston,	-	-	-	-	Richmond.
A. A. Wyse,	-	-	-	-	Bryan.



RECAPITULATION.

Seniors,	-	-	-	1
Juniors,	-	-	-	14
Sophomores,	-	-	-	29
Freshmen,	-	-	-	83
Aggregate,	-	-	-	127

The attendance upon the optional courses in Ancient and Modern Languages will be found in the reports of those departments. The main work of the college for the past year has been fully in harmony with the objects of its creation. The instruction given, both in theory and practice, has made it for the first time *in reality* a school of Agriculture and Mechanics, in which every student, whatever his object in entering, *must* receive thorough and extensive training in one or the other of the leading features. When the great disadvantages under which so radical a change in the policy of the school are remembered, the results are certainly noteworthy and satisfactory, and suggest strongly the propriety of making only such changes in the present programme as the legitimate development and extension of the technical courses require to increase their practical value. In my judgment there is still undoubtedly too much time allowed for instruction in branches non-essential to the leading objects for which the college was founded—subjects which in themselves are assuredly of value, but which have only a remote connection, if any, with professional training in agriculture and mechanics, and which should be pursued exhaustively in some other institution of different aims. I allude more particularly to metaphysics, ancient and modern languages and literature, and military science—the time allotted to which is out of proportion to their real importance in a college whose primary object is industrial and scientific training. A reduction in these courses seems essential to the value and efficiency of the practical work in mechanical, physical, chemical and agricultural laboratories, the time for which during the past session has been entirely inadequate. For details of each separate department, reference is made to the accompanying reports.

INDUSTRIAL DEPARTMENT.

The results in this department must, after all, be the test of the success of a college which professes to train agriculturists, horticulturists, machinists and engineers. The farmer or machinist is not made by study of *words* and *theories*, which is

well enough in its place, but it is of prime importance that, as a supplement to such study, he should be brought in constant contact with the tools of his profession, should understand the principles of their construction, and acquire that skill in their use which *practice* alone can give, and should be made continually to apply in the shops or fields the scientific principles of the class-room. By being a skilled workman himself, he will thus become a judge of good work, a master of all the details of his profession, and be able to direct with advantage the operations of those who may be under him in after life. For the college aims, by conducting his general and scientific culture parallel with his practical instruction, not to make the student a mere laborer, but to qualify him for the broadest professional usefulness and success, and for the highest stations in society.

The practical instruction here has been carefully conducted in conformity with this view, and with gratifying results, which would have been still more gratifying had the present schedule of studies permitted more time for practice. As much of the machinery had to be made to order after the professor of mechanics arrived in October last, the shops could not be gotten ready for use before the beginning of the second term, when the industrial duties of each course were begun in the Senior, Junior and Sophomore classes, and continued regularly three hours a day two days a week, until the close of the session; the agricultural students going to the fields and gardens, the mechanical to the shops. Great interest has been manifested by the students from the beginning, and as the object and value of these exercises become more and more apparent, the interest steadily increased, so that it was a source of constant regret that the time for practice was so limited. If the agricultural and mechanical courses here are to be developed so as to be of great practical value, it is necessary that the time for practice be largely increased, so that *daily* exercises may be required. This time can be easily gained by cutting down the time now spent in the study of books and recitations thereon, which is disproportionately great for the real objects of the college.

So far from there being, as some suppose, no demand for industrial education, the applications received show a steady and increasing desire for it on the part of our youth—many of whom are anxious to work out part of their expenses, if the college can

use their labor at ordinary wages. And many of the students who were originally attracted here because of the advantages offered for fine literary training at low cost, are having their minds turned into entirely new channels by the value and attractiveness of the technical courses which are being so prominently developed now, and which are surely working a radical change in the results of the college. It is greatly to be desired that the resources of the college, in shops, farm and funds, were large enough to receive all worthy young men who desire to enter and labor for their education. When this can be done the college will then be brought in valuable and intimate relation with the industrial classes, for whose benefit it was expressly intended by the act of Congress, and who are now virtually excluded, unless they are made the beneficiaries of the act passed by the late Legislature, by the voluntary action of the State senators and representatives.

THE FARM.

The farm has this year for the first time been nearly self-supporting—having supplied the Mess-hall with all the pork needed, about 5000 pounds, a large quantity of lard, and an abundance of choice vegetables, and raised fair crops of corn, forage, cotton, etc., Two bales of cotton, picked by the students, were sold by John D. Rogers & Co., of Galveston, who generously declined to charge anything for their services. The hogs we are breeding are pure Poland Chinas, and we hope to add several other breeds this coming session. It is earnestly desired to begin the breeding of blooded cattle next fall, and with a view to that I have had enclosed about ninety acres of land on the east boundary of the college tract, which makes a pasture admirably adapted to the purpose. Besides being a highly attractive feature to students and visitors, the stock purchased for the college will soon pay for themselves with the milk supplied by them. Undoubtedly the main object of the farm should be to supply for the student a laboratory for instruction in which the practical part of his profession, and the most valuable, is to be learned. In it he has to be taught farm organization and economy, the best methods of culture for staple and special crops, the use of the most improved machinery, and made to apply as far as possible all the principles of the science of agriculture ac-

quired in the class-room, and to assist the Professor in conducting experiments whose results may be of value or interest. It can, therefore, never be made self-sustaining when a large number of students have to be instructed, for a much greater amount of machinery and tools for practice must be kept than an ordinary farm requires, and much of the labor performed will be without pecuniary result to the college. The returns in cash must be incidental to the main object of instruction, and will never be large. In this connection it is well to say our present enclosed tract is too small for using advantageously the large number of students which the State will send here next fall in the department of agriculture. At least one hundred acres more should be taken in, and additional mules, machinery and tools purchased to supply ample facilities for instruction. The fencing can be done by the students, if the materials be supplied. The college at present has barely sufficient implements and stock to run the farm *as a farm* simply, without reference to its true relation to the college, as the most important factor in the leading course of instruction. The growing crops speak for themselves and for the Farm Superintendent, Mr. E. Kellner.

THE SHOPS.

In October last I turned over to Prof. Van Winkle the two-story wooden building, known as "North Barrack," which he so reconstructed as to arrange therein, on the ground floor, his series of shops, tool room, engine room, etc., as explained in the cut elsewhere. This department of instruction is one of the most attractive features of the college, and is destined to be, when properly developed, of vast importance to the manufacturing and mechanical interests of this State. The students will give during commencement week a public exhibition in the shops of their knowledge of steam enginery, machinery and wood-working tools, which will admirably illustrate the system under which they have been trained. The shops are a *model*, and have greatly pleased all the machinists and manufacturers who have visited them—being equipped with the most improved tools and wood and metal-working machinery, as far as the equipment goes. But they are already too small to meet the demand for instruction, and must be materially enlarged by next session.

This can be done by using the upper story of the building for instruction in carpentry for the lower classes, to equip which additional sets of tools can be procured for a few hundred dollars.

In the machinery department an upright drill and an iron planer are needed badly, both of which could be purchased for less than \$1000. They should be supplied by some of our wealthy manufacturers or railroad owners, who are certainly deeply interested in the early and proper development of mechanical education in Texas. I shall make a personal appeal to the most prominent of them this summer, and, it is hoped, not in vain. The effort will be made to have a small cotton gin placed here by the manufacturers, which can pay for itself by ginning the crop of the vicinity—there being no gin near us. Should this succeed, a small grist mill, which is really needed here, can be added at little expense, as we have already steam-power sufficient for all. A thorough mechanic will be needed next year to assist in the practical instruction, and he can be utilized in constructions, repairs, etc., so as to be no additional charge on the college. Insurance to the amount of \$2500 has been effected on the tools and machinery.

PHYSICAL AND CHEMICAL LABORATORIES.

These laboratories have been fitted up with extensive and most valuable apparatus, at great cost, and constant work in them is of the highest importance to him who would rightly understand and apply the laws of the physical universe upon which the industrial arts are founded. The work accomplished during the session has been of value, it is true, but entirely too small in amount, owing to the absorption of time by other departments. This should be remedied another year. No laboratories comparable to these exist elsewhere in the State. In them the student finds ample facilities for practice in quantitative and qualitative analysis of all substances, organic and inorganic, and for investigating experimentally the laws of heat, light, electricity, hydraulics, statics, magnetism and other branches of physics, and for acquiring a practical knowledge of microscopy and its applications in the arts and sciences. He does not simply

see the apparatus used, but *is made to use it himself*, and is constantly incited to make original researches in physics and chemistry. Most of the practical work this year has been done by the Professor, upon whom numerous calls have been made for analyses of mineral waters, soils, minerals, etc. A suitable gas apparatus for heating purposes is the most pressing need of the chemical laboratory.

MILITARY DEPARTMENT.

The instruction has been given by Capt. Geo. T. Olmsted, Jr., U. S. A., and is required in the act of Congress. It is limited to the drills and other usual duties of a military post—no class-room recitations being required. It is earnestly recommended that the maximum time for instruction be fixed at a low figure, and that students be not required to wear uniforms except when in ranks under arms. The following is the

MILITARY ORGANIZATION.

Capt. Geo. T. Olmsted, Jr., U. S. A., Commandant of Cadets.

STAFF.

H. G. Stinnett,	-	1st Lieut. and Adjutant.
L. R. Davis,	- -	1st Lieut. and Quartermaster.
W. Campbell,	-	1st Lieut. and Private Secretary.
David Rice,	- -	Sergeant Major.
J. W. F. Furrh,	-	Color Sergeant.
A. Talbot,	- -	Quartermaster Sergeant.

Co. A.

Captain, S. A. Hare.
1st Lieut., D. H. Watson.
2d Lieut., C. G. Dwyer.
3d Lieut., W. M. Crisp.
1st Sergt., W. T. Armstrong.
2d " S. F. King.
3d " A. A. Wyse.
4th " E. McDaniel.
1st Corp., C. S. Graves.
2d " C. L. Lauderdale.
3d " A. B. Griffith.
4th " F. R. Von Bieberstein.

Co. B.

Captain, G. H. Dugan.
1st Lieut., G. S. H. Pfeuffer.
2d Lieut., R. S. Lipscomb.
3d Lieut., Searcy Baker.
1st Sergt., W. B. Ford.
2d " Jno. W. Thomason.
3d " J. C. Caldwell.
4th " J. C. McCarty.
1st Corp., J. S. Stewart.
2d " V. J. Long.
3d " J. McL. Burford.
4th " J. R. Cravens.

MISCELLANEOUS.

I respectfully recommend :

That one hundred dollars be appropriated from the Contingent Fund of next year for the library.

That students in analytical chemistry be charged a small fee for chemicals, etc., consumed.

That the class of Biology and Veterinary Science be united with that of Agriculture.

That in future a committee of your Board attend the final examinations of the classes.

That the present medical fee of \$13 charged all students be abolished, or very greatly reduced. Students should pay medical bills only for services rendered when sick, and the college should not become responsible for such bills.

That the duties and responsibilities of the farm superintendent be more clearly defined.

That it be made the specific duty of the scientific chairs and the President to begin at once the organization of a museum of agriculture for the college, by collecting specimens of soils, seeds, plants, ores, minerals, building rocks, timbers, grasses, insects, curiosities, etc.—in fact, of every thing which can help illustrate the natural resources of our State.

That the Board urge upon the Legislature at its next meeting the importance of adopting the recommendation made by the Governor to amend the present law, so that the interest on the federal endowment may be used for other purposes besides the payment of professors' salaries.

As the books of the college can not be closed before the 22d inst., the financial statement can not be presented un-

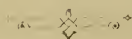
til then, when detailed accounts and vouchers will be submitted, showing the expenditures of the State appropriation, and the operations and present condition of the college—with which it is hoped you will be highly gratified, as the institution is, financially, in far better plight than it has been for years past.

With great respect, I remain

Your faithful servant,

JNO. G. JAMES,

President.



DEPARTMENTS OF INSTRUCTION.

DEPARTMENT OF AGRICULTURE AND HORTICULTURE.

PRESIDENT J. G. JAMES:

SIR—I herewith respectfully submit my report of the Department of Agriculture and Horticulture for the past session.

I have, during the whole session, given instruction in agriculture and horticulture to those of the older students who have chosen the agricultural course. The class numbered in the first term eight members; three of these left college during the session, leaving only five at present. As laid down in the catalogue of last year, all the Freshmen are also in the agricultural course, but being hard pressed with studies in the fundamental branches, it was thought best to defer the technical studies till they were better prepared to take them up. The subjects gone over during the first term in agriculture were: The Soil—its constituents, origin and formation, classification and physical properties. We next completed a course in drainage. Both subjects were taught by lectures.

In the second term the class received full instruction in vegetable gardening, and irrigation. The former was taught by lectures, for the latter we used Stewart's text book. It has been my object throughout to make the instruction as practical as possible, and the work in the classroom has been complemented by frequent illustrations and out-door work, especially is this the case with the gardening. It gives me pleasure to add that the class has made very satisfactory progress. The scope and character of the work may be learned from the examination questions, herewith submitted.

I also taught geography to the entire Freshman class during the first term; and mathematics (arithmetic and algebra) to a section of that class in the second term. The progress in these studies has, on the whole, been good.

PRACTICAL INSTRUCTION

in farm and garden operations has also been given to the students in agriculture for four hours each week during the past term. They have thus grafted a number of pear

stocks, which were purchased for that purpose, a work which proved highly interesting; they received instruction in the formation and care of hot-beds and cold frames; they assisted in pruning the orchard, in the planting of the seeds and care of the young forest trees, in the planting and care of vegetables, etc., and they have also had practice in handling plows, cultivators, mowers and other farm implements.

I may be pardoned for adding here that I consider work of this character an essential feature in the education of agriculturists. That an apprenticeship in practical work is necessary for a practical farmer, few will have the hardihood to deny. How else can he know what constitutes a fair day's work? or, how can he do, or direct the doing of, a thousand and one things in which experience alone can have trained the judgment? The truth of this proposition being granted, the question is reduced to this: is it proper and expedient to acquire such experience at an agricultural college? I am aware that many people—and among them some eminent educators—would give a negative answer; but it is difficult to see how an institution which professes to teach practical agriculture can, in justice to the student, withhold practical experience in work. Some young men may, indeed, consider it a hardship, but these can hardly entertain serious thoughts of adopting agriculture as a profession. The most eloquent argument in favor of practical education in this respect is, perhaps, the fact that the most successful agricultural colleges in America, those whose graduates engage very largely in agriculture as a profession, and do it, as a rule, with eminent success, have all adopted some system by which the students are required to devote part of their spare time to practical work. A student may be told how to graft, and bud, and prune, and plant a tree, and he may even see it done, but if he never does it for himself he will be about as proficient in the art as a scholar can be in arithmetic by learning the rules without ever working an example.

THE FARM AND GARDEN.

The total area under the plow this year is 53 acres, divided between the following crops, viz: corn 24 acres, oats 3 acres, cotton 2 acres, millet 3 acres, vegetables and experiment plots 10 acres, and orchard 11 acres. The cultivation of these crops has been under the direct management of Capt. Kellner, Farm Superintendent. The area has proved too large for the two, and during the spring three, hired men allowed the Department. The work has also been considerably augmented by the many odd jobs about the buildings and Mess Hall, which have devolved upon the men of the farm. The farm crops are, at this writing, in

excellent condition, but it has been found impossible with so few hands to give the attention to experiment plots, young trees, and plants of all kinds, that these should have, and must have, if results at all satisfactory are to be reached. Besides, the place needs improvement in every particular on the farm, garden and grounds, but with so small a force the progress must necessarily be slow. It is wasted labor to plant trees, lay out drives, etc., if means are not provided for their preservation and care afterward. I respectfully suggest that, if possible, a few hundred dollars be set aside, or made distinctly available, for the hire of labor, so that the improvements of the farm and garden, and the appearance of the whole campus shall not be entirely dependent upon the contingent fund. Experiments, also, are utterly worthless unless they can receive careful attention, and at exactly the right time. It is undoubtedly the province of this department of the college, not only to teach agriculture to the young men who may avail themselves of the opportunities offered here, but also to work for and with the farmers throughout the State in the solving of the many questions of interest to them, and for the general advancement of agriculture. Careful testings of all kinds of agricultural plants, and of varieties not generally known, whether corn, cotton, grasses, trees, etc., or improved methods of culture, may prove of incalculable value. But, whatever the result of such work may be, the investigations which lead to it are more or less expensive.

The Mess Hall has this session been supplied with vegetables from the garden to the value of \$170.26.

The Horticultural branch of this department is now so far developed that it has become necessary to employ a man with some experience in that line to work in the garden and tend to all related interests. There is constant work for one man, and it will be economy to employ one who is familiar with the work, though his wages may be somewhat higher than that of a man working on the farm. I respectfully urge the hiring of such a man early next spring.

There are now twenty-five varieties of grape vines in the garden, of which twenty varieties are from cuttings purchased this spring, and therefore still young plants. The object is to increase the stock by propagation till we can plant a vineyard, and also to add to the number of varieties so as to compare them together and report upon their merits. The orchard is in a fair condition, and will this year bear a little fruit. It is to be regretted, however, that none of the trees are labeled. Many of the trees need straightening and stakes. A start has been made in the ornamentation of the grounds by planting three hundred

shade trees and shrubs this spring in groups near the buildings. With the exception of four evergreens, all are at this time doing splendidly. Seeds of a large number of forest and shade trees were planted during the winter, but, on account of dry weather in the spring, only about thirty species have come up, and some of these not very well. The experiment will be repeated.

Small patches of cotton are grown of the following varieties, viz. Browning, Jones' Improved (imported from Georgia), Sea Island and Senegambia. Seed of the last was sent us by his Excellency, Governor O. M. Roberts. The thanks of the department are also due to Mr. J. T. Lovett, Little Silver, N. J., for grape cuttings; Mr. T. V. Munson, Denison, for quince cuttings; Dr. Canfield, Wellborne, for seed of upland rice; Mr. G. H. Hogan, Ennis, for sample of Texas blue grass, and to S. H. Fox, 1225 N. Fifth street, St. Louis, for a "bug and worm exterminator."

LIVE STOCK.

Last fall forty-nine head of hogs were purchased at \$2 per head, and also a Poland China boar and two young sows for \$35. The investment has proved a profitable one. The Mess Hall has since been supplied with pork to the value of \$219, and we have at present fourteen sows and forty-two pigs, eight of which are thoroughbred Poland China, the remainder half-bred. Another young mule has been purchased this summer, making four mules in all belonging to the college. In regard to cattle, I can not do better than substantially repeat what I said in my report to Col. Peeler five months ago. The college does not own a single cow, or live-stock of any description, except what is mentioned above. As a means of instruction, it is of paramount importance that a few of the leading breeds of cattle be represented here in order to give the student an opportunity to see, compare and handle them. We feel the want of them continually. I deferred instruction in live-stock to the agricultural class this session because we had no thoroughbred stock to refer to for illustrations. Once purchased, they could readily be made a source of income. There is a market for the milk here at the Mess Hall, and the young animals could be reared for beef or for breeding purposes, as the case would warrant. A pasture of eighty acres has recently been fenced in, in the hope that means may be provided in the near future for the purchase of a few head of cattle.

IMPLEMENTS AND MACHINERY.

Some additions to the stock of farm implements have been made during the session by the purchase of a wagon, a mower, a corn and cotton stalk cutter, a cart, a planter

and cultivator, and some hoes and spades, all of which were much needed. A single and double harness have also been bought.

METEOROLOGY.


A set of meteorological instruments is *en route* for the college from the signal service office, Washington, D. C. When set up, a full daily record of the temperature, rainfall, humidity of the air, winds, etc., will be kept and periodically published.

NEEDS.

The Department stands in immediate and pressing need of a tool-house. The floor of our small barn, which has heretofore served as a repository for farm implements, can no longer answer this purpose. The injury sustained by machinery from forced exposure will, in the course of a year, more than balance the cost of a suitable structure. It will also be necessary to provide some means of irrigating at least eight or ten acres of land. The absence of rain for considerable periods is liable to blast all prospects of success with many things, especially young trees, trial plots and the like. This point deserves the more attention, in as much as here are excellent facilities for irrigating a small area at comparatively little cost. A very capacious tank can be formed by building a dam at the lower end of the long and deep ravine running across the newly fenced pasture, and by the use of a small steam pump the water can be raised into a reservoir, and from there distributed over the land. About \$600 will cover the expenses. If the improvements on the farm and campus, which I hope for, can be made in another year, a yoke of oxen and another mule team can be used to advantage. A small propagating house is also needed. These, with the means to hire labor, and some thoroughbred stock as mentioned above, constitute the more important present needs of the Department.

All of which is respectfully submitted.

CHAS. C. GEORGESON,
Professor of Agriculture and Horticulture.



DEPARTMENT OF MECHANICAL ENGINEERING AND DRAWING.

PRESIDENT J. G. JAMES:

SIR—I have the honor to submit herewith a report of the organization, work and condition of the Department of Mechanical Engineering and Drawing for the session of 1880-81. In organizing this department due consideration was paid to—

The wants and resources of the State.

The character of student material to be dealt with.

The appliances requisite for giving such a course of practical and theoretical instruction as would be most beneficial to the community and consequently most valuable to the graduate.

The urgent and increasing demands of the State are for skilled artisans—those who are able to do good, practical work, or take positions in manufactories and other mechanical pursuits as superintendents and foremen—whether in the construction and operation of railroads, cotton and woolen machinery, or building of structures and machines for developing our natural resources.

The immense water powers of Texas should be turned to good account in driving thousands of spindles and looms. Capital, dormant or invested abroad in similar enterprises, is ready to lend its assistance in preparing our staple products for the large and growing demands of home consumption. But the State is almost entirely dependent upon foreign skill and labor in the mechanical pursuits, and the comparatively few enterprises already in existence are crippled and stagnated. The importance of the problem is fully appreciated, and it is incumbent upon us to find a speedy solution. The novelty of this course of instruction may require an exposition of its objects, which, being clearly understood, will serve as the best explanation of its details, viz: To give a good education based on mathematics, physical sciences and drawing, and a sufficient familiarity with their practical application in the mechanic arts to secure to the student a livelihood and to the State a valuable member of society in exercising and disseminating his technical knowledge.

The scope of a single trade is too narrow for purposes of instruction by classes: moreover, there are certain principles underlying them all. The great variety of tools used in mechanical processes of the present day are only combinations of a few elementary hand-tools. All pupils should,

therefore, take the same course of elementary instruction, after which, encouragement should be given in those special branches for which they show an aptitude. Students possess different talents to be developed—some exhibiting a tact for drawing and designing, others for directing operations or for mechanical manipulation; but, to be proficient in any industrial branch, a thorough knowledge of all pertaining to it is as essential to the director as to him who actually frames the house, bores the steam engine cylinder, or builds the structure or machine. Each must not only be familiar with his own work, but know exactly what to expect from those connected with him. In order to intelligently direct others, he must know their capabilities; to follow the directions of others he must know how to interpret and supply their wants. For practical instruction the student requires only physical strength and common sense. But text-books on mechanical subjects employ principles of mathematics, physics and chemistry, as well as those of practice. Instruction in these branches must, therefore, precede theoretical or text-book mechanics. Thus arranged, the practical value of the course is directly in proportion to the time spent. The student feels this, and is prepared to receive his theoretical training with higher appreciation and broader criticism.

THE COURSE.

The course of instruction is in three parts, viz:

Practice—Shop work and mechanical laboratory.

Drawing—Free-hand, geometrical and mechanical.

Theoretical—By lecture and text-book.

In the shops practical instruction is given—first, in elementary construction, that the pupil may acquire a most intimate knowledge of practice and skill in the use of tools and work-shop appliances. He is conducted through the shop exactly as though assuming the lowest place in a manufacturing establishment, successively filling higher positions, until finally graduated as superintendent. Practical instruction is never carried to the extent of weariness or drudgery, but is, on the contrary, a pleasant transition from study and recitation. All work is executed after drawings to which it must conform. Beginning with exercises in framing and joinery by use of hand-tools, the pupil is promoted to the use and care of wood working machinery, such as circular and fret saws, the turning lathe, and exercises in pattern making. He is then made tool and stock clerk and timekeeper, thus familiarizing himself with any special tools which may have escaped his notice in the wood department, and becomes acquainted with makes, sources and prices of the shop equipment. He then takes a course of filing,

chipping, screw cutting with taps and dies, and other vise work, and erecting of machinery; is then put in charge of the boiler, whence he is duly promoted to engineer to take charge of the power and its transmission. This is followed by a course in drilling, boring, turning lathe, screw-cutting and other machine tool work.

The above, including the bulk of shop practice, covers the first two years of the course, which, together with the preparation in other departments of the college, has laid the foundation for a course in Mechanical Engineering and laboratory practice. Beginning in the third year, lecture room instruction is given in the following subjects, the practical illustrations of which, together with the students' specially elected line of work, forming the basis of practice in the junior and senior years:

General properties of building materials.

Experiments on strength of materials.

Masonry, framing.

Bridges, roofs, roads, railroads and river improvements.

Iron, kinds of—manufacture of wrought and pig—mechanical properties.

Steel: kinds and how made, uses and how worked.

Shafting and transmission of power.

Study of construction and operation of steam engines; original essays and criticisms of machines and structures of various kinds throughout the course.

Special study of construction of the locomotive—from complete set of original working drawings—grist mills, cotton mills and machinery—sugar mills—plantation machinery, railroad equipments.

DRAWING

is the short-hand language of modern science. It is a universal language, common to all men, showing at a glance what words would be inadequate to express, and is indispensable to the mechanic and engineer. The course begins in the first year, embracing lettering (free hand) sketching, geometrical problems and construction (with instruments); plotting of surveys and level section of drawing and elements of machines. In the third and fourth year elements of Mechanism. Descriptive Geometry, Shades, Shadows and Perspective; drawing of original designs for machines and structures, and drawing for graduating thesis. In the practical departments all students are required to provide themselves with two suits of blue jeans overalls, a standard 24-inch rule and pocket callipers for shop practice; and in the department of drawing a set of instruments—T-square and two set squares. This outfit of drawing instruments will cost the student about \$8, and can be disposed of when

he leaves the college, should he so desire.

SHOP AND EQUIPMENT.

The "north barrack," a two-story frame building 84x34 feet, has been reconstructed for purposes of the shops, and a small brick extension built for boiler house. The tools were ordered early in the present session, and by time of their arrival—January 1st last—the wood room was properly fitted up with racks and benches for their reception, and were placed in the hands of the present junior class one week later. The machinery, in consequence of scarcity in markets and delays of transportation, was not all received until the middle of May; but this has in no wise interfered with the regular instruction of the classes, whose exercises in mill work have been turned to good account in setting the machinery and putting it in running order. Our present shop equipment consists of nine sets student's wood-working tools—fret saw, jig saw, iron table circular saw, (wood lathe and cutting off saw in process of construction). On the metal side of the shop, eight sets of vise tools, Prentice screw-cutting speed lathe, engine lathe, mounted grindstone, fifty feet shafting, 12-horse power engine with reversing link and indicator attachments.

Tool room—in which are kept a complete set of wood-working tools and supplies, and special tools for metal-working, as taps, dies, drills, reamers and small shop supplies. We are under obligations to A. Field & Sons, Tack Company, and American Screw Company, for fine mounted sample cards of their wares.

The drawing department is equipped with thirty-six boards and a set of instruments; but is greatly in need of tables.

WORK OF THE DEPARTMENT.

As stated, the present junior class has been instructed in elementary wood-working and mill work since January 1st last. Besides their regular exercises, they have set the machinery and made their own drawing tables and chairs, and in several instances T and set squares, and most have received instruction in steam enginery. Both Junior and Sophomore classes have taken the regular course in mechanical drawing as laid down for the first two years, practicing four hours per week. Your attention is respectfully called to the work which has been executed. A delay of nearly two months was occasioned this department awaiting supplies of drawing materials. In the lecture room the Junior and Senior classes have completed Mahan's Civil Engineering and Compass Surveying and Levelling in Davies' Surveying, together with field work in use of level and compass, and exercises in plotting and profile section

drawing.

The work of the Professor in charge in attending to the details of organizing and equipping the department has interfered with but a single day's recitation, and in spite of the novelty of the course and short time devoted, the classes have equalled our most sanguine expectations.

CONDITION OF THE DEPARTMENT.

The appropriation of \$4600 made by the State Board has been expended for the above equipment; the "tool book" shows the following relative costs of different parts of the plant:

Machine tools, 20 per cent.; wood-working machinery, 10 per cent.; hand tools, 12 per cent.; engine and boiler, 22 per cent.; transmission of power, 8 per cent.; transportation, 9 per cent.; tool room stock and special tools, 9 per cent.; reconstruction of barracks and drayage, 10 per cent.

We have at present accommodations for two classes of twelve each. By division of the classes into sections, it was expected to meet the present patronage of the college, but the large number of "State students," together with the others that may be expected, making the incoming Freshman class number more than fifty, will require increased facilities. At least twenty-five additional sets for elementary wood-working and twenty for iron are imperative requirements of the department if these students are to receive any of its benefits. These sets will contain only the most elementary tools, and can be furnished with benches and vises at \$15 per set, making \$675. The building can be otherwise put in shape for temporary use with an expenditure of about \$50. This building, one of the old wooden barracks, is ill adapted to purposes of shops, being entirely too small and, without expensive alterations, is too frail for machinery. Originally used as dormitories, for the purpose of deadening sound between floors, it was constructed with a false floor below the second story, and this was covered with from three to five inches of sand, which sifts through at the slightest shock or vibration. This will in a short time ruin machinery and tools, is a constant source of annoyance to operators on the first floor, and should be removed before doing any serious damage.

From the isolated location of the college, and considering the few opportunities offered for study and observation elsewhere in the State, the student should here be brought in contact with a variety of first-class machinery, but the appropriation limits the department to that above enumerated—the only machine tools being a speed lathe and an engine lathe. The capacity for machine operations is consequently very small, and should be increased as soon

as practicable by at least a small iron planer and an upright drill. We are also greatly in need of a forge for at least sharpening and tempering tools; and should have a small melting furnace for making iron and brass casting, and for purposes of illustrating moulding and pattern making. It is to be hoped that before the incoming Freshman class have completed their elementary course with hand tools that provision will have been made for erecting a larger, more substantial and well lighted building equipped with a proper complement of good machinery and tools.

The aid of an assistant is absolutely necessary that the property of the department may receive the proper care and attention, and that the shop instruction of one section may be in progress during the class-room instruction of others in Engineering and Drawing—otherwise some part of the department must be practically abandoned.

I am, very respectfully yours.

FRANKLIN VAN WINKLE,
Professor Mechanical Engineering and Drawing.

DEPARTMENT OF CHEMISTRY AND PHYSICS.

PRESIDENT JOHN G. JAMES:

SIR—During the past session instruction in the Department of Chemistry and Physics has been given to the Junior, Sophomore and Freshman classes. The first term was devoted to an outline of General Physics. The Junior and Sophomore classes pursued this course with interest and profit, and at the intermediate examination almost every member of the two classes was required to illustrate important principles by the use of apparatus in the presence of the faculty and visitors. This was done without blunder or failure. The second term has been given to theoretical chemistry. This course has been a mere outline, because (under circumstances which it is hoped will not exist hereafter) the Faculty did not deem it possible to assign sufficient time for anything more. It is believed that the schedule for the next session will make ample provision for practice in the laboratories. Such work, and as much of it as possible, will be invaluable to the student for mental, moral and manual discipline. The Freshman class has finished a fair course of Physical Geography, and given much satisfaction by showing unusual interest and proficiency in the subject.

Apart from the regular academic work of the Department, time has been found for some chemical investigations. Complete quantitative analysis have been made of mineral waters from Luling and from Caldwell. Qualitative examinations have been made of waters from Bryan and from the vicinity of the college, also of dredgings from Sabine Pass and of minerals sent the college. The fitting and arrangement of apparatus, and the preparation of chemicals required by a new laboratory, has consumed much time. A mercurial pump, quick filtering apparatus and aspirators have been constructed, and many smaller pieces of apparatus made as they were needed. Except in the case of one piece, this work has been done by the head of the Department without any assistance whatever. It is very desirable that in the future students may have opportunities to develop their mechanical skill and ingenuity in this kind of work. Notes of all analytical work and observations have been kept, and it is intended to publish from time to time such abstracts of these as may seem of importance and interest to the public. Investigations have been commenced upon soils, which promise useful results.

Correspondence upon topics connected with agricultural chemistry has been invited through the newspapers, but little interest seems to exist on these subjects, nor is it to be expected that there can be any systematic co-operation in observation and experiment outside of the college till our own trained students begin to go out among the people. The appliances of this Department are now sufficient for most purposes. There is but one pressing need: that is gas for heating purposes. The worker who must rely on spirit lamps meets with constant annoyance and serious embarrassment, besides the greater expense of the heat. It is next to impossible to do the work required here in a reliable and expeditious way without gas. A warranted gas machine, with capacity for twenty-five burners, can be put up here for \$200. I respectfully urge upon the authorities the great importance of this matter to the Chemistry of the Agricultural Department and as a matter of economy to the students who must use heat in the laboratory. I suppose provisions will be made by which students will be charged a special fee for chemicals and use of apparatus.

It may be well to repeat here the assurance that the instruction of this Department will be as much as possible given by practical work of the students themselves under direction, rather than by mere lectures or recitations.

Very respectfully,

H. H. DINWIDDIE,

Professor of Chemistry and Physics.

DEPARTMENT OF BIOLOGY, HYGIENE AND VETERINARY SCIENCE.

COL. JOHN G. JAMES,

President Agricultural and Mechanical College of Texas:

SIR—I beg to submit my first annual report of the Department of Biology, Hygiene and Veterinary Science.

Early in the course the difficulty of arranging classes rendered it impracticable for me to organize my class, but, in obedience to your directions, I delivered a *course of twelve lectures* on Hygiene to the entire corps. I only attempted to treat the subject in a simple and elementary manner to make it as free from technical difficulty as possible, and thereby present some useful, practical hints that all men can apply to the great purpose—preserving health. The following outline will show our scope and aims: *The air we breathe*—its impurities; importance of ventilation. *The water we drink*—its impurities; means of detection and removal. *The food we eat*—the amount and quality; the sources of adulteration, accidental and intentional. Clothing—quality; adaptation to climate and occupation. Personal Hygiene exercise—cleanliness, study, Labor and Sleep.

Brief and fragmentary as these mere outlines were, I have reason to believe that many of the corps became much interested in the subject, and will doubtless pursue it profitably hereafter.

At the opening of the second term I organized a class in Anatomy and Physiology, with three recitations a week, and, though the young men seemed very much over-worked, they entered on the subject with much zeal, and progressed very satisfactorily to the end of the term; and though the class was very small, it gave me opportunity, by means of well executed *plates, models*, etc., to make the course very full for the time allowed.

Hoping that we are about to enter upon a period of greater prosperity, it is my earnest desire that I may have a large class and wider field for work in future.

I am, very respectfully,

D. PORT SMYTHE, M. D.,

Professor Biology, Hygiene and Veterinary Science.

- DEPARTMENT OF MATHEMATICS.

PRESIDENT J. G. JAMES:

SIR—I have the honor to submit the following report

of the operations in the Department of Mathematics for the session just closing.

There have been no students in the Senior class in this Department; the member of that class having completed the course in mathematics last year under the elective system. The Junior class studied during the first term, Plane and Spherical Trigonometry and Mensuration, using Schuyler's text, and, during the second term, Analytical Geometry (Bowser). Both of these subjects have been completed and carefully reviewed. In addition, I have given to the class a course of twenty lectures upon the general principles and applications of Analytical Geometry, and the discussion of curves of the second and higher orders. During the last term they have also studied Elementary Mechanics (Wood), having only two recitations per week, and finishing the first half of the text. This class has labored under the disadvantage of not being fully prepared for the Junior course, and therefore could not complete the same. The Sophomore class, during the first term, completed Plane, Solid and Spherical Geometry (Venable), together with weekly exercises in Inventive Geometry (Spencer), and, during the second term, Plane and Spherical Trigonometry and Mensuration (Schuyler), and chapters VII., VIII. and IX. of Davie's Bourdon upon the subjects: Formation of Powers, Extraction of Roots, Formation Properties, and Summation of Series; Logarithms, Interest, Combinations and Probabilities. In Geometry the text used abounded in practical applications, and theorems for original demonstration, in which I gave them an exercise each week.

The Freshman class has been divided into four sections. The first section completed Davies' Bourdon through chapter IX.; the second and third sections the same text through Quadratic Equations, chapter IV.; the fourth section has been able only to complete arithmetic (Venable). Those members of the first three sections who have passed a satisfactory examination, will be advanced to the Sophomore class. The fourth section, composed of very poorly prepared students, are now only ready to enter the Freshman class. My experience with the Freshman class during this session, leads me to the conviction that we can not have a satisfactory Freshman class until we have adopted a standard for admission. I would respectfully recommend that in my department a satisfactory examination upon arithmetic be made a requisite for admission to the Freshman class. During the first term Prof. Van Winkle had charge of two sections of the Freshman class, and Capt. Olmsted of one section. During the second term Prof. Georgeson

has instructed the fourth section of the same class. I have had five daily recitations throughout the session.

It has been my aim to lead the student into the habit of thoroughly analyzing every subject; to teach him to accept nothing as true in mathematical science, unless rigidly demonstrated, and to require him so to demonstrate all rules and principles before applying them to the solution of problems; to impress upon him the importance of this science in the practical affairs of life, and in the investigation of the laws of nature, as well as its value in strengthening and disciplining the intellectual powers, by carefully selected and original problems throughout the course, involving the application of its principles to the arts, industries and applied sciences of to-day.

During the session, in all the classes, I have, from time to time, supplemented the text by such explanations, lectures and problems as would serve to impress upon the mind of the student the important principles and applications of the subject. Through the liberality of the Honorable Board of Directors, the Department has been well equipped, being now supplied with a complete set of mathematical models, made by Schroeder in Germany, and imported for the college; a set of mathematical instruments and a slated globe; also, there has been added to the library a carefully selected collection of American, English, French and German works upon all branches of mathematics. Desiring to raise the Department to the high standard which importance warrants, I offered last fall, as a stimulus to exertion, a medal, to be awarded to that member of the Sophomore or Junior class who should submit the best paper upon a special examination held for that purpose. This examination was held the 10th inst. The good effects resulting from the offering of the medal have been apparent in the increased interest manifested by the students. Mr. Charles Graves, of the Sophomore class, was the successful contestant. I would also mention favorably Mr. George Pfeuffer, of the Junior class, his paper being the best in his class. Next year I shall offer the medal to that member of the Sophomore class who shall stand the best examination upon the mathematics of the Freshman and Sophomore courses. I herewith submit the examinations set for the different classes, and also the one for the medal. I take pleasure in reporting that, with few exceptions, the students in this Department have labored diligently, and the progress has been satisfactory. The Department and discipline of the classes have been excellent. I am, sir, very respectfully your obedient servant.

LOUIS L. MCINNIS, Prof. Mathematics.

DEPARTMENT OF ENGLISH LANGUAGE AND LITERATURE.

COL. JNO. G. JAMES, PRESIDENT:

SIR—The report of the Department of English Language, English Literature and History, is herewith submitted. During the year every student in the college has been in this Department and received instruction from me, except two, who finished the course last year. Except during the first month, I have received no assistance in my department, and during that month I taught a class in another department. The following studies have been taught and finished: English Grammar, History of the United States, Universal History, English Literature and Logic. The Freshman and Sophomore classes have been drilled constantly in Composition and Elocution. In accordance with the advice of the Board of Directors, the students of the Freshman class have been drilled almost daily in regular spelling lessons, in addition to exercises in spelling and writing on the blackboard. The Freshman class included about three-fourths of all the students in the college, and two-thirds of them were very backward in this preparation for entering college. In consequence of this backwardness, they could not finish English Grammar in four months, since they had but five hours a week, a part of which time had to be devoted to Composition and Declamation and Spelling lessons. The class, therefore, during the last term, recited twice a week in English Grammar and Spelling, and twice a month each in Composition and Declamation. This left them only two recitations a week for four months to study the History of the United States. The class was divided into three sections, of from twenty to twenty-five students in each section.

The limited time allotted the Department, and the great backwardness of the students in all these studies, and the large number composing the class, rendered my work heavy, arduous and exhausting. Another difficulty in instructing this class existed in the difference of their attainments, some of them being one and two years behind others in their studies; and yet these could not be assorted and separated into classes according to their advancement, because of the clashing with other Departments. The class studied through the Grammar, with daily exercises on the blackboard by students or myself, and reviewed the entire work, each student writing the review, topics being assigned the class. In addition to the regular work, review and daily exercises near the close of the session. I summed

up, in several oral lectures at the blackboard, the entire work as a compact whole. The History of the United States had to be taught in thirty-two lessons. The students, therefore, were required to recite from fifteen to twenty pages at a time. This was too much, and extra labor devolved on me; but the students showing great interest in the study, it was a labor of love, and the class worked manfully to accomplish what was required of them. There were seventy students in this class. I prepared and delivered written lectures on the subject, embracing not only the topics of the text studied by the students, but such as touched the political, social, religious, commercial and constitutional history of the country.

It is not my plan to teach history by requiring my class to memorize a number of dry, disconnected, uninteresting facts, but to present it to the student as a picture of the march of the human race—advancing from darkness to light, from the fogs of antiquity to the civilization of the present age, pointing out the great lessons to be learned from the experience of six thousand years. Any nation or people would certainly be acting very unwisely to shut their eyes and march blindly into the pitfalls of anarchy and tyranny, and the whirlpools of revolution, when they could so easily fix them on the highway of experience pointed out by the historian, and shun the misfortunes, mistakes and faults of the ignorant past, and choose the way of success, honor and happiness. History, when properly studied and properly taught, is one of the most important elements in education. It is indispensable to the man of culture. It is the locomotive of the mind, the vehicle of thought, the life of learning. The history taught was not only finished by the class by recitations, but during the last ten weeks of the term written essays on all the most important periods of the history were prepared by each student weekly and read before the class. Under all the circumstances, I am able to say that I am well pleased.

Most of the students showed much interest in Declamation and Composition, and exhibited a generous and commendable emulation, both before the class and in public.

The Sophomore class in my department numbered during the session twenty-seven students. The work assigned them was to begin and finish Wilson's Outlines of History, to prepare and read an essay every two weeks on subjects selected by the Professor, to declaim before the class and receive instruction in Elocution every other week. For this work they had three hours a week, two devoted to History and one to Composition and Elocution. An outline of history, embracing all nations from the creation to

the present time, compressed into one volume, and taught in sixty-four lessons is a bare skeleton of the life of the human race, and to put flesh, and color, and beauty to these dry bones so as to attract the interest and win the love of the student, is no easy task. The class recited the whole work, and reviewed it by written essays, thereby exercising their judgments as to the importance to be given to different events, and cultivating the art of composition, and insuring a close and accurate study of the subject. I made application for ancient maps to aid me in teaching by lecture, but failed to obtain them until towards the close of the second term. I purchased with my own means two very complete Historical Charts, and with their assistance and modern maps furnished me, delivered oral and written lectures throughout the entire session, sometimes taking a nation through its entire history, and in other lectures taking certain centuries, periods and eras, and grouping contemporary events of the different nations existing at the time. At the examination last February, the members of the class did great credit to themselves, and I was entirely satisfied with the result. In Composition and Declamation they have generally taken interest, and some of them have shown taste and talent.

The Junior class numbered twelve students, and recited to me three times a week. The first term they finished Johnston and Browne's English Literature, reviewed it, wrote about one dozen essays on topics embraced in the text selected by me, and stood an acceptable examination in February. In the second term, they finished Jevon's Logic and reviewed the work. The class were drilled in exercises appropriate to the text frequently on the black board, and the different systems and plans of several authors were developed and compared. Written lectures, carefully prepared, were delivered during the first term.

According to the course of study adopted, this class would have studied Rhetoric during this session, but that study was finished by them last year under me when they were in the Sophomore class. As Rhetoric is clearly related to Grammar, I will suggest that it would be better to assign it to the Sophomore class to follow that study, and carry the Universal History to the Junior class with English Literature.

There was but one student in the Senior class, and he finished the English studies under me last year. I, therefore, had no recitations in the studies of the senior year.

I keep in my recitation room for reference, in addition to the text books used by the students, a number of the best works on English Grammar, Language, Literature,

United States History, Universal History, Logic, Rhetoric, Elocution, etc., to illustrate to the classes the difference in treatment and arrangement of the subjects under consideration by the best authors, and the different views sometimes entertained by them. Throughout the year I have endeavored to arouse the ambition of the students in my department in all the various studies of English Language, Literature, History, Declamation and Composition, and have used all proper means suggested by my experience to make the work interesting, as well as useful and profitable. I think the students have appreciated my efforts in the performance of my work, and, generally, I am satisfied with them.

A man whose language and literature are English, can not be a respectable scholar unless he masters a course in English at least equal to that hitherto adopted in this college. Nothing less will enable him to speak and write the English language correctly—to become acquainted with the authors and the great works of the language; nothing less will enable him to understand the origin and development of the mother tongue—will furnish him with facts and lessons of the world's history—will make him a sound reasoner.

The work assigned to this department is receiving more attention—is being recognized as of greater importance, and is assuming larger proportions at the present time wherever the language is spoken, than at any previous period in its history. I would like to see the course made broad and thorough, for the time allotted to this department is not sufficient to enable a student, ignorant of the elements of English grammar, to become a finished scholar.

I shall, at the proper time, recommend some changes in books to be made in this department.

Very truly, your obedient servant

J. R. COLE,

Professor English Language and Literature.

DEPARTMENT OF MODERN LANGUAGES.

JOHN G. JAMES, PRESIDENT:

SIR—I have the honor to submit the following report of

the Department of Modern Languages for the session ending June 22d :

Since the reorganization of the college the Languages have been taught for the first time this year as optional branches, while every student was required to take either the Agricultural or Mechanical course. This arrangement of optional studies has, for various reasons, not given entire satisfaction. Students considered the Languages as studies which they were allowed to discontinue whenever they pleased ; and were they crowded in any of the Departments within the courses, the optional studies were sure to suffer, as a deficiency in them would not, at the least, effect their class standing, nor their advancement from one class to another. Work among students, by all means, ought to be equally distributed, and those engaged in the study of a Language should be relieved of some other duty, as otherwise it would work a hardship on them at a great disadvantage compared with their fellow-students who pursue only either of the two courses.

All these difficulties could, in my consideration, be avoided easily by making the Languages elective within the courses—that is, by requiring of every student coming here to take one Language, whether Modern or Classic to be left entirely to his discussion. There is not a scientific nor technical school in either Europe or the United States where German and French do not form part of the regular course, and even the Agricultural College of Michigan, so frequently cited as the model college, requires two years' instruction in French. Like the French, the German language is of vast importance to every scientific man, not to speak of the great advantage it must be in the practical pursuits of life in a State which, according to the last census, has less than 200,000 citizens of German descent within her borders ; and even a knowledge of the Spanish in view of the near opening of a trade channel to our neighboring Republic, can be of incalculable benefit to our practical farmer and mechanic.

The total number of students in the Department has been this year forty-two, distributed into the different classes as follows: Sophomore, German, 17; Junior, German, 13; Sophomore, Spanish, 11; Sophomore, French, 1.

The class in French, as you have observed, consisted of but one student, and as the late Board has not passed any resolution concerning the number of students justifying the formation of classes in the Departments of Languages, I did not feel at liberty to refuse this young gentleman. I gave him a full course of instruction, and I am glad to say that I have been amply rewarded for the time spent with him by

his unusually rapid progress. Having completed the course, as laid down in the catalogue for the Sophomore class, Mr. Graves read DeSaint Pierre's 'Paul et Virginie,' and different selected pieces of poetry, and began, also, the study of Maurice Poitevin's 'Grammaire Française.'

The Sophomore class in Spanish completed the practical part of DeTorno's Grammar, and read about half through Morales' Spanish Reader, while the Sophomore German finished the practical part of Donai's Grammar, translated the first sixty exercises of Stahl's Versions, and read 102 pages in Adler's Progressive Reader. Both classes ought to be familiar with the declensions of nouns and the conjugation of regular, and a large number of irregular, verbs which, with their moods, tenses, persons, numbers and inflections, are the vital elements of discourse.

The Junior class in German translated the whole of Stahl's Versions, completed the short systematic course of Campbell's Grammar, and were thoroughly instructed in Syntax. Eichendorff's 'Aus dem Leben eines Taugenichts' was read and translated in the class-room without any aid outside of the dictionary, and likewise a series of 'Reisebriefe aus America,' by Fr. v. Bodenstedt, in 'Ueber Land und Meer,' one of the best literary journals of Germany, filed in the reading room.

The aim of this Department is to enable the graduates to understand the Modern Languages when spoken, and, to a certain extent, to speak them, to avail themselves of the standard scientific and technical works in German and French, and to give such practical acquaintance with literature, literary history and philology, as may be best calculated to engender that mental culture which makes the truly educated man.

The method of teaching in this Department is set forth in the following outlines. While Grammar contributes within certain limits to correct speaking and writing, it must not be inferred that it teaches to speak and write; it affords no assistance whatever in reading, and does not explain the meaning of phrases or words, which is the only difficulty encountered in learning to read a foreign language. The translation which interprets the unknown text, not the grammatical condition of the words, must be the first, the only object for consideration in the Sophomore classes. Students, therefore, begin to read and write before they attempt the study of rules, as it is a well established fact that they might be able to repeat a grammar from beginning to end without being capable of understanding or speaking one sentence in the language. After three months reading and translating sentences, readers are used treating of sub-

jects familiar to the students, and written in an easy style so as to avoid encountering at the same time the difficulty of the subject and that of the language. The fables, anecdotes, tales, and historical sketches thus read will not alone be of general interest, especially when they relate to the nations whose languages are studied, but also familiarize the students with the terms and phraseology of ordinary conversation. The elements of discourse by the daily practice of reading will remain in the memory without efforts, and the students will unconsciously store in their minds a number of grammatical rules, which in the second year they learn to combine to a complete system by means of the study of the theoretical part of a grammar. As Juniors, the students are required to put the rules in practice by numerous applications, taking as models the example which generally accompany them. They also have to devote a large portion of their time to reading and translating of some classical work, as voluminous reading is the surest road to a thorough knowledge of any language. In the third year, or Senior class, the students will be carried in German and French through a short course of scientific reading, as the text-books in common use in this country are, without doubt, inadequate to the wants of the students of science who, though able to read and speak the languages on common topics, are apt to find the greatest difficulty in reading scientific journals and in consulting such foreign books as their professors may indicate as sources of information on the problems in which they are engaged. The classics will be read to a still larger extent, but without any complete translations, as the students with a considerable portion of the vocabulary and idiomatic phraseology at their command, will find it far easier to follow the thoughts of an author directly than to translate. Besides, a number of lectures will be delivered to the Senior classes in the languages studied on the origin, progress and decay of languages and literature, in which the principal epochs of the world's history in their bearings on literature and civilization are to be discussed. The written exercises, finally, will consist in compositions instead of translations, and while in the previous classes the students were allowed to answer in English any of the questions put by the professor in the native idiom, in the Senior classes no other language will be used in the class-room but the one under study.

In conclusion, allow me, Sir, to thank you for the liberality with which some of the necessary wants of this Department were supplied. The two large wall-maps of Germany and France, and the small set of very valuable books of reference, together with the German and French

literary papers subscribed for the reading-room, were, and will be, constant sources of investigation for both professor and student.

Respectfully,
Your obedient servant,
G. GARTNER,
Prof. of Modern Languages.

DEPARTMENT OF ANCIENT LANGUAGES.

PRESIDENT J. G. JAMES:

SIR—I have the honor to present, through you, to the Board the following report of the Department of Ancient Languages during the term just closed.

The course pursued has been mainly that laid down in the Catalogue, with such changes as were found necessary, and which will be mentioned in the order of their occurrence.

In Latin—the Freshman class has studied Gildersleeve's Grammar, Gildersleeve's Exercises and Reader, devoting their attention mainly during the second term to the Reader, with regular practice in the Exercises and Syntax.

The Sophomore class has read portions of Caesar, with three books of Virgil's *Æneid*, and three orations of Cicero, with regular practice, also, in Exercises and Syntax. It was my desire to accomplish more reading in this class, but the number of recitations under the schedule adopted at the February term was diminished. What has been read was done without review, and the class has, I am glad to say, in the main, accomplished its work very well.

The Junior class, under the old course of last year, had read portions of the Junior course, and hence their work has extended into the Senior course, as now constituted. They have read portions of Horace, three books of Livy, portions of the Annals of Tacitus, and of the *Agricola*, with weekly practice in rendering English into Latin.

The number of students in this Department has been 50—2 in the Junior, 11 in the Sophomore, and 37 in the Freshman class. This does not comprise all who would have entered, had circumstances permitted. Numbers, to my own knowledge, were prevented from the impossibility of attending the class—the hour conflicting with their classes in the regular course. Others, again, were deterred from the fear that they would be unable to carry on the study in connection with the regular course. The same difficulty has kept many students from attempting the Greek course, though several who were in that department last year were anxious to continue it. The number study-

ing the Greek, however, is always small relatively to the number taking Latin.

These are some of the difficulties resulting from the *optional character* given to the Language courses last year. This arrangement was entered into by the Board, as I understand, not from any desire to thrust these studies into a corner, but from a natural wish to give prominence to those branches which the law has made "leading objects." Experience has shown that the plan does not work well. The student himself does not keep up that interest he should, when he finds these courses are not essential to his graduation. Impressed by these considerations, the Faculty has presented to the Board a scheme which, if adopted, obviates the difficulties I have mentioned. By making the Languages *elective* within the course, all the advantages of the optional system are gained, and its difficulties removed—as set forth in the paper presenting the scheme. The law of Congress plainly requires these branches to be taught, and the means to give them the greatest efficiency should be adopted, so long as these do not interfere with the leading objects of the school, which we all recognize and desire to see promoted.

The study of Language is looked upon by some as a mere embellishment. Without discussing the subject here, I desire to say that if that is all that can be claimed for the study, it does not deserve a place in any course of instruction. In my opinion, a study that is not *practical* in its results, does not deserve the name. Language, properly taught, does develop the faculties in a way that few other studies do. This has constituted, and always will constitute, its claims to a place in any wise plan of instruction; and hence the wisdom of the Act of Congress in providing against the exclusion of "Scientific and Classical studies" from the Agricultural and Mechanical Colleges.

Respectfully submitted,

C. P. ESTILL,

Professor Ancient Languages.

MISCELLANEOUS.

DIPLOMAS AND CERTIFICATES.

The Diploma of the College will be conferred upon all students who complete either of the prescribed four years' courses of study, and pass satisfactory examinations on all the branches embraced therein. Each candidate for graduation is required to submit to the approval of the Faculty an essay, composed by himself, on some literary or scientific subject, which essay must be read by the author on Commencement day, if so ordered.

To every student who completes satisfactorily any of the optional studies—French, German, Spanish, Latin, Greek—a special diploma on that subject will be granted.

Each student receiving a Diploma will be required to pay \$5 00 therefor. No academic honor, however, shall be conferred on any student who shall prove deficient in conduct for the session.

MARKS AND EXAMINATIONS.

All recitations throughout the session are graded and recorded. The maximum for the day, week, month, quarter, term and session is 10, which indicates perfect recitations; imperfect recitations are expressed in decimal fractions of the maximum.

Two general examinations of each class are held during the session, which every student is required to attend. The first, called the Intermediate, is held in January, and embraces the subjects of instruction in the first term. The

second, called the Final, is held in June, and embraces the subjects taught during the whole session. These examinations are mainly in writing, and the questions propounded have numerical values attached.

A monthly report is mailed to the parents or guardian of each student, showing his class standing, demerits and health.

ORGANIZATION AND GOVERNMENT.

The students are organized into a battalion of two or more companies, under the immediate command of the Commandant. The commissioned and non-commissioned officers are students, who are promoted to those positions for their soldierly qualities, due regard being had to their length of service.

The uniform is of cadet gray, and is cheap, neat and serviceable. No other dress than that which is prescribed shall be worn by students after they have received their uniform.

As this institution is in no sense an asylum for vicious, depraved, or unmanageable boys, no such persons will ever be admitted, knowingly, under any conditions; and a student who shows himself insensible to the obligations of honor, good morals and self-respect, is at once sent home.

Manly sports and exercises, when not in conflict with studies and duties, are properly encouraged.

Students receive the admonition and counsel of the President before being subjected to any penalty, except in cases of flagrant offenses. Those who are habitually neglectful of their duties, or who do not regularly attend their classes, will be required to withdraw from the College.

No student is allowed to leave the College during the session without the permission of the President, on application through the Commandant.

The strictest attention to study and the most exact punctuality in attendance on recitations, and other duties, will be made the *condition* of every student's continuance at the College; and any student who without authority absents

himself from recitation or any other duty, deserts his class, or refuses to attend when warned, shall be dismissed, or less severely punished, at the discretion of the Faculty.

Students are prohibited, under penalty of dismissal, from having in their possession ammunition, weapons or arms not issued for the performance of military duty; nor shall these be retained loaded in quarters under any pretext.

Students are prohibited from entering into combinations under whatever pretext. One who shall begin, excite, cause or join in any boisterous or riotous conduct, or become a party to any agreement to avoid or violate any regulation, to hold no intercourse with a comrade, or to do any act to the prejudice of good order and military discipline, shall be dismissed.

No student shall have in his possession, or play at cards, or games of chance, engage in a raffle, or in any manner wager money or other things, on penalty of dismissal.

Permission to attend private parties, or places of public amusement, will not be granted during the term.

No cadet can be granted a leave of absence during a term of twenty weeks, without an urgent necessity.

A student who shall drink, or bring, or cause to be brought within the cadet's limits, or have in his room, or otherwise in his possession, any fermented or intoxicating liquor, or fruits or viands preserved in intoxicating liquor, shall be dismissed.

A student who shall cut, mark, or otherwise injure or deface the buildings, furniture, or appurtenances; the trees, shrubbery, green-sward, grounds, fences, stables, or out-houses; or who shall lose, injure, destroy, or improperly dispose of the arms, accoutrements, or other property of the College, shall make good all damage, and be dismissed or otherwise punished according to the nature of the offense.

To each recorded delinquency a number of from one to ten proportional to the degree of the offense in a moral and military view, is assigned to express demerit.

If any student receives 150 demerits for the whole or

any part of a half-year, or 250 for a greater period, he shall be declared deficient and dismissed.

RELIGIOUS AND MORAL CULTURE.

Prayers are held every morning in the Chapel, which the students are required to attend. Every Sunday afternoon there is preaching in the Chapel by one of the ministers from Bryan, and all students are expected to be present. And the Faculty will try with all the means in their power to protect and develop the moral character of those committed to their charge. Classes for Sunday Bible instruction will be formed, which students are invited to join.

SOCIETIES.

There are two literary societies in the College, the Austin and the Calliopean. They meet weekly in their respective halls for practice in debate, literary composition and declamation. The Natural Science Society meets weekly for the discussion of scientific subjects.

LOCATION.

The College is situated on a tract of land of 2416 acres belonging to the State, five miles south of the town of Bryan. The Houston and Texas Central Railway passes through the grounds, and has a depot, College Station, within a quarter of a mile of the College. Daily passenger trains make close connection with the entire system of railroads of the State, thus rendering the College accessible from every section.

The postoffice, as well as depot, for the College is *College Station* and not *Bryan*.

LIBRARY AND READING ROOM.

Through the liberality of the Legislature, a valuable

Library and Reading Room have been provided for the use of the students, and large additions will be annually made.

The Library now comprises standard works of History, Biography, Agriculture, Mechanics, Engineering, Mathematics, Natural Sciences, Law and Political Economy, Mental and Moral Philosophy, Poetry, General Literature, and Reference.

Among the periodicals kept on file in the Reading Room are:

ENGLISH.

London Times. Quarterly Journal of Pure and Applied Mathematics. Canadian Monthly. Engineering. Chemical News. Agricultural Gazette. Nature.

AMERICAN.

American Journal of Science and Art. Popular Science Monthly. United Service Magazine. Scribner's Monthly. Harper's Monthly. Lippincott's Monthly. Sunday Magazine. Southern Historical Society Papers. Rural New Yorker. Prairie Farmer. Massachusetts Ploughman. Industrialist. Farmer's Review. Scientific American. The Nation. Puck. Harper's Weekly. Philadelphia Times. New York Herald. Louisville Courier-Journal. Southern Churchman. Christian Observer. Religious Herald. Christian Advocate.

Gifts of books and magazines will be thankfully received. Back numbers of literary and scientific periodicals will be especially useful in completing the files already begun.

ADMISSION OF STUDENTS.

Applicants for admission must be not less than 16 years of age: must have a fair knowledge of the elementary English branches; must be free from any disease, deformity or permanent injury, which would render them unfit for the prescribed duties; and must present satisfactory testimonials of good, moral character.

Students supply their own towels, pillow-cases, sheets, blankets, clothes-bag, comb and brush. All articles of

clothing and bedding should be plainly marked in indelible ink with the owner's name.

SIXTH ANNUAL SESSION

Commences on October 1, 1881, and ends on the fourth Wednesday in June, 1882. Students can enter at any time, and will be charged from date of entrance only; but it will be greatly to their advantage to report at the beginning of the session.

EXPENSES.

All students are admitted free of charge for tuition and quarters, but each must pay in advance an annual matriculation fee of \$10.00.

Board, fuel, washing and lights for the academic year, \$120.00.

PAYMENTS DUE QUARTERLY IN ADVANCE.

Matriculation Fee	\$10 00
First Quarter.....	20 00
Second Quarter.....	30 00
Third Quarter	30 00
Fourth Quarter	30 00

Total College charges for the year.....	\$130 00
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Only one uniform—an undress suit of cadet gray—is required, which costs \$13.00.

Text-books can be purchased at the College at regular retail rates.

There are no extra charges of any kind, but wilful damage to public property will be assessed against students.

No part of the matriculation fee will be refunded students who leave or are dismissed before the session ends.

All remittances should be made directly to the President.

No fee for medical attendance is charged by the college, but students who are sick will pay the attending physician his reasonable bills for services rendered. Sick quarters and nursing will be supplied, as heretofore, free.

INDUSTRIAL DEPARTMENT.

The duties of this department are, to a great extent, planned with reference to illustrating and applying the scientific principles taught in the class-room. All *instructive* labor is regarded as compensated by the instruction given and the skill acquired. Manual labor is not compulsory, but students who desire to help defray their expenses by work can do so by taking part in the *uninstructive* labor, such as ordinary farm operations, repairing, carpentering, painting, janitor's duties, and stock management, at fair wages. This can be done at extra hours and on Saturdays without interference with regular studies and duties.

Instructive and uninstructive duties will be supplied in:

1. Agriculture—general farm operations.
2. Horticulture—garden, vineyard, and fruit culture.
3. Stock and dairy management.
4. Mechanics—carpentering, fencing, painting, etc.

Four thousand dollars has just been expended by the Board of Directors for the equipment of the mechanical department with the necessary tools, machinery, engine and materials. The shops in which systematic practical instruction is to be given are:

1. Carpenter shop.
2. Vise shop.
3. Forge shop.
4. Steam, Wood and Metal Working Machinery.

The Directors have fixed the maximum rate of compensation per hour in the Agricultural Department at 15 cents, in the Mechanical, 20 cents.

The object is to assist worthy students in every way possible, but the College can not guarantee to any one student sufficient labor to meet *all* his expenses, as labor can be furnished only as long as the interests of the institution permit it. A small amount of labor is annually expected from each student, to assist the Professor in the ornamentation and improvement of the grounds.

Agricultural students are encouraged to use their spare time in farm work at fair wages, but will be paid for *quantity* and *quality* of work, not for *time* only. All paid labor will be given by preference to those students needing assistance.

ANNOUNCEMENT

OF THE

SIXTH ANNUAL SESSION

OF THE

Agricultural and Mechanical College

OF TEXAS.

COLLEGE STATION, BRAZOS CO.,

TEXAS.

Board of Directors :

E. B. PICKETT,	-	-	Liberty.
GEORGE PFEUFFER,	-	-	New Braunfels.
T. M. SCOTT,	-	-	Melissa.
C. C. WIGGIN,	-	-	Houston.
J. G. GARRISON,	-	-	Henderson.

FACULTY.

JNO. G. JAMES, President, and *Instructor in Political Economy and Book-keeping.*

J. R. COLE, A. M., *Professor English, History and Literature.*

H. H. DINWIDDIE, *Professor Physics and Chemistry.*

G. GARTNER, *Professor Ancient and Modern Languages.*

C. C. GEORGESON, *Professor Agriculture and Horticulture.*

L. L. MCINNIS, A. M., *Professor Mathematics.*

F. VAN WINKLE, M. E., *Professor Mechanical Engineering and Drawing.*

PLAN OF INSTRUCTION.

The plan of instruction consists of an Agricultural Course of three years for Students in Agriculture, and a Mechanical Course of three years for Students in Mechanics. All Students must enter one or the other of these Courses—pay Students making their own selection, State Students being assigned in accordance with their appointments. Every Student satisfactorily completing either three years' Course will be graduated with the full diploma of the College. No distinction whatever will be made between pay and State Students in studies or duties.

AGRICULTURAL COURSE.

	STUDIES.	Hours Weekly	
FIRST YEAR— 3D CLASS.	Mathematics.....	Five.	Arithmetic Reviewed, Venable's; Davies' Bourdon begun. Clark's English Grammar, Composition, Declamation. (Breeds of Horses, Cattle, Sheep and Swine. Soils, their formation and classification. (Use of Farm Machinery.
	English.....	Five.	
	Agriculture.....	Five.	
	Practice.....	Ten.	
	Mathematics.....	Five.	Davies' Bourdon finished. Venable's Geometry begun. Stephen's History U. S.; Composition and Declamation. (Soils continued; History of Agriculture; Structural Botany. (Use of farm machinery.
	English.....	Five.	
	Agriculture.....	Five.	
	Practice.....	Ten.	
	Mathematics.....	Five.	Venable's Geometry completed. Schuyler's Trigonometry. General Principles, with laboratory illustrations. Ganot. Hill's Science of Rhetoric; James' Southern Selections; Essays and Declamations. Low's Practical Agriculture. Stewart's Farm Irrigation. Zoology. Practical Instruction in garden, orchard and farm culture.
	Physics.....	Five.	
	English.....	Five.	
	Agriculture.....	Five.	
	Practice.....	Ten.	Surveying. Wood's Elementary Mechanics. Theoretical Chemistry, Roscoe; Experiments. Universal History. Essays, Declamations. Field Crops, Fertilizers, and Tillage, Dairying, Drainage. Instruction in garden, orchard and farm culture.
	Mathematics.....	Five.	
	Chemistry.....	Five.	
	English.....	Five.	
	Agriculture.....	Four.	Leveling, Surveying, road making, farm fences, bridges, etc. Laboratory work in quantitative and qualitative analysis. Lockyer's Outlines. English Literature, Original Orations, Essays. Farm management, Meteorology, Veterinary Science. Experimental work.
	Practice.....	Ten.	
	Farm Engineering.....	Three.	
	Chemistry.....	Eight.	
	Astronomy.....	Two.	Laboratory work in Agricultural Chemistry. Dana's Elements. English Literature, Lectures, Essays and Orations. Veterinary Science, Nursery business, Forestry, Entomology. Constitutions of the United States and of Texas. Fish, game, stock, irrigation laws. Experimental work.
	English.....	Three.	
	Agriculture.....	Five.	
	Practice.....	Ten.	
	Chemistry.....	Eight.	
	Geology.....	Two.	
	English.....	Three.	
	Agriculture.....	Five.	
	Law.....	Two.	
	Practice.....	Ten.	

MECHANICAL COURSE

	STUDIES.		Hours Weekly	
FIRST YEAR— 3D CLASS.	Mathematics.....	Five.	Venable's arithmetic reviewed, Davies' Bourdon begun. Clark's English grammar, composition, declamation, Free-hand drawing. Shop practice, elementary constructions in wood.	2D TERM. 1ST TERM.
	English.....	Five.		
	Drawing.....	Five.		
	Practice.....	Ten.		
2D TERM. 1ST TERM.	Mathematics.....	Five.	Davies' Bourdon finished. Venable's Geometry begun. Stephen's History U. S.; compositions, declamations, Free-hand drawing, geometrical constructions with instruments. Wood-working machinery.	2D TERM. 1ST TERM.
	English.....	Five.		
	Drawing.....	Five.		
	Practice.....	Ten.		
2D TERM. 1ST TERM.	Mathematics.....	Five.	Venable's Geometry completed, Sehnyler's trigonometry. General Principles, with laboratory illustrations. Ganot. Hill's Science of Rhetoric; James' Southern Selections, Essays, Declamations. Mechanical Drawing. Elementary constructions in metal-working.	2D TERM. 1ST TERM.
	Physics.....	Five.		
	English.....	Five.		
	Drawing.....	Five.		
2D TERM. 1ST TERM.	Practice.....	Ten.	Church's analytical geometry. Surveying, Roscoe's chemistry, and experiments. Universal History, Essays and Declamations. Elements of Machine Drawing. Machine tools, steam enginry, mill work.	2D TERM. 1ST TERM.
	Mathematics.....	Five.		
	Chemistry.....	Five.		
	English.....	Five.		
2D TERM. 1ST TERM.	Drawing.....	Five.	Wood's Mechanics, Original Oration and Essays, Special laboratory work. Lockyer's Outlines. Mahan's civil engineering; Field work with compass, level and transit. Descriptive Geometry; special constructions with machines. Pole on Iron; Bourne's steam engine; Fairbairn's mills, and mill work. English Literature, Original Oration and Essays. Dana's Elements, Constitutions of U. S. and of Texas. Designs for shop constructions, and for graduating piece. Special Machine work in construction of graduating piece.	2D TERM. 1ST TERM.
	Practice.....	Ten.		
	Mathematics.....	Five.		
	English.....	Three.		
THIRD YEAR—1ST CLASS.	Chemical Physics.....	Six.		2D TERM. 1ST TERM.
	Astronomy.....	Two.		
	Engineering.....	Five.		
	Practice.....	Ten.		
2D TERM. 1ST TERM.	Engineering.....	Five.		2D TERM. 1ST TERM.
	English.....	Three.		
	Geology.....	Two.		
	Law.....	Two.		
THIRD YEAR—1ST CLASS.	Drawing.....	Five.		2D TERM. 1ST TERM.
	Practice.....	Ten.		
	Mathematics.....	Five.		
	English.....	Three.		

The object of the College is to supply theoretical and practical *professional training* in Agriculture and the Mechanic Arts. The Courses of Study are carefully arranged with reference to this subject, and only so much literary and general culture is given as is consistent therewith. However, for the benefit of those who have the time, ability and inclination to pursue extra literary studies, the Board of Directors have—

RESOLVED: That the course in Ancient and Modern Languages shall be optional, form no part of the prescribed course in Agriculture and Mechanics, and shall in no way interfere with said courses; and that in no language shall the course of study be longer than three years. Graduates in any of these courses shall be entitled to proper diplomas. No student entering an optional branch shall be permitted to drop it on his application, except at the end of a term; but, should the President at any time be satisfied that such study is detrimental to his regular course, he shall cause him to drop it when he sees fit.

MEANS OF ILLUSTRATION AND PRACTICAL INSTRUCTION

A farm of 2416 acres, 230 under fence, with mules, improved farm machinery, implements, etc.

Vegetable gardens; orchard of peach, apple and pear trees; vineyard.

Chemical laboratory, well equipped for analytical and experimental work with apparatus and chemicals costing \$3000.

Physical laboratory, with valuable and extensive apparatus for illustrating the laws of heat, light, motion, statics, hydraulics, electricity, magnetism, etc.

A complete set of meteorological instruments for recording atmospheric changes, from U. S. Signal Office.

Microscopes, slides, etc., for investigations.

Level, compass, and transit for field work in surveying, leveling and civil engineering.

Drawing academy, fitted out with tables, drawing boards, instruments, models, charts, etc.

Mineralogical and geological cabinets.

Leading English and American technological journals in Agriculture, Mechanics, and related sciences.

Series of Shops, with tools, wood and metal working machinery, 12 H. P. steam engine, all latest and most approved kinds—costing over \$4000.00.

STATE STUDENTS.

The Seventeenth Legislature, by Act approved March 20, 1881, amended the Revised Civil Code as follows :

"Article 3692 a. There shall be maintained and instructed at said college [A. & M. College of Texas] annually, free of charge to them, three students from each senatorial district in this State, one of whom shall be appointed by the Senator of such district, and the other two by the Representatives thereof. One-half of said students so appointed shall be compelled to take an Agricultural, and the other half a Mechanical course of study, to be assigned thereto by the President of said College; and in order to pay their expenses the Comptroller, on proper vouchers being filed in his office by the Directors, is authorized to draw his warrant on the State Treasurer, against any appropriation made for that purpose "

To carry this into effect, the Board of Directors have adopted the following :

RESOLVED, That the Senator from the 1st senatorial district will appoint one student from said district, who shall take a Mechanical course, and the Representatives from said 1st district will appoint two students from said district, who shall take an Agricultural course in the said A. & M. College of Texas, free of charge; and the Senators and Representatives will appoint students from the other districts as follows :

- 2 District, 1 in Agriculture and 2 in Mechanics.
- 3 District, 2 in Agriculture and 1 in Mechanics.
- 4 District, 1 in Agriculture and 2 in Mechanics.
- 5 District, 2 in Agriculture and 1 in Mechanics.
- 6 District, 1 in Agriculture and 2 in Mechanics.
- 7 District, 2 in Agriculture and 1 in Mechanics.
- 8 District, 1 in Agriculture and 2 in Mechanics.
- 9 District, 2 in Agriculture and 1 in Mechanics.
- 10 District, 1 in Agriculture and 2 in Mechanics.
- 11 District, 2 in Agriculture and 1 in Mechanics.
- 12 District, 1 in Agriculture and 2 in Mechanics.
- 13 District, 2 in Agriculture and 1 in Mechanics.
- 14 District, 1 in Agriculture and 2 in Mechanics.
- 15 District, 2 in Agriculture and 1 in Mechanics.
- 16 District, 1 in Agriculture and 2 in Mechanics.
- 17 District, 2 in Agriculture and 1 in Mechanics.
- 18 District, 1 in Agriculture and 2 in Mechanics.
- 19 District, 1 in Agriculture and 2 in Mechanics.
- 20 District, 2 in Agriculture and 1 in Mechanics.
- 21 District, 2 in Agriculture and 1 in Mechanics.
- 22 District, 1 in Agriculture and 2 in Mechanics.
- 23 District, 1 in Agriculture and 2 in Mechanics.
- 24 District, 2 in Agriculture and 1 in Mechanics.
- 25 District, 1 in Agriculture and 2 in Mechanics.
- 26 District, 2 in Agriculture and 1 in Mechanics.
- 27 District, 1 in Agriculture and 2 in Mechanics.

- 28 District, 2 in Agriculture and 1 in Mechanics.
 29 District, 1 in Agriculture and 2 in Mechanics.
 30 District, 2 in Agriculture and 1 in Mechanics.
 31 District, 1 in Agriculture and 2 in Mechanics.

[In the above, the "one" student is to be appointed by the Senator, the "two" by Representatives.]

"RESOLVED, That the Senators and Representatives be requested to make their appointments after competitive examinations.

"RESOLVED, That should vacancies occur during the session, the Senator or Representatives entitled to make the appointments in the first instance, shall be immediately notified by the President of the A. & M. College of Texas to fill said vacancies. Should such vacancies be not filled in thirty days from the time notice has been sent, the President shall fill said vacancies.

"RESOLVED, That the age of applicants be not under sixteen years, and that they shall be able to pass an acceptable examination in arithmetic as far as and including proportion, and that they have a fair understanding of elementary grammar and geography; but no student shall be matriculated who has a chronic or contagious disease, or is otherwise physically incompetent to perform agricultural or mechanical labor. That such student shall enter the agricultural or mechanical course, and the labor performed by him shall be instructive, the number of hours devoted thereto shall not be less than ten per week; and while performing such service he will be allowed to wear clothing suitable to his occupation. At all other times the students shall wear the prescribed uniform of the College."

Applicants must invariably present written testimonials of good moral character and correct habits.

All State students will receive, free of charge, from the College, board, fuel, washing, lights and tuition, but must pay for their books, clothing, and other personal expenses.

It is earnestly desired that State students be appointed *at once*, and that due notice be sent to the President of the College.

THE SIXTH ANNUAL SESSION

Begins October 1, 1881, and ends on fourth Wednesday in June, 1882.

ANNUAL EXPENSE OF PAY STUDENTS.

Matriculation fee,	-	-	-	-	-	\$10 00.
First quarter's board, fuel, washing and lights,						30 00.
Second " " " " " "						30 00.
Third " " " " " "						30 00.
Fourth " " " " " "						30 00.

Payable quarterly in advance. \$130 00.

For further information address

JNO. G. JAMES, PRESIDENT.

Commencement Exercises.

1881.

SUNDAY, JUNE 19.

Commencement Sermon, by Rev. S. M. Bird, of Galveston.

MONDAY, JUNE 20.

Exhibition of Agricultural Department,	-	-	10 A. M.
Freshman and Sophomore Declamations,	-	-	8 P. M.

TUESDAY, JUNE 21.

Exhibition of Mechanical Department,	-	-	10 A. M.
Inspection of all Departments of College,	-	-	3 P. M.
Joint Celebration of Literary Societies,	-	-	8 P. M.

WEDNESDAY, JUNE 22.

Valedictory	-	-	by Cadet G. H. Dugan, of Sherman.
Reply	-	-	by Cadet C. G. Dwyer, of Brenham.
Prize Essay of Natural Science Society, "Electricity as a Motive Power,"	-	-	by Charles S. Graves, of Hempstead.

GRADUATE.

George Henry Dugan,	-	-	-	-	of Sherman.
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DIPLOMAS IN LATIN

were awarded W. Campbell, of Tilden, and Jno. W. Thomason, of Huntsville.

GOLD MEDALISTS.

Natural Science Society Medal, C. S. Graves, of Hempstead.
 Prof. McInnis' Mathematical Medal, C. S. Graves, of Hempstead.
 Battalion Medal for Best Shot, - H. J. Miller, of Bellville.

EX-CADET REUNION, 3 P. M.

Oration	-	-	-	-	by J. B. Walker, of Galveston.
Essay	-	-	-	-	by B. F. Fuller, of Paris.

131C
1881/82

REPORT

OF THE

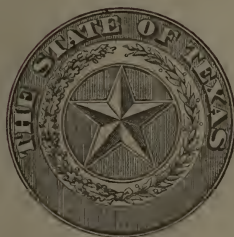
BOARD OF DIRECTORS

OF THE

State Agricultural and Mechanical College

LOCATED IN BRAZOS COUNTY.

MARCH 25, 1882.



AUSTIN:

STATE PRINTING OFFICE, D. & D. INSTITUTION.

1882.

THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

REPORT

OF THE

BOARD OF DIRECTORS

OF THE

State Agricultural & Mechanical College

LOCATED IN BRAZOS COUNTY.

MARCH 25, 1882.



AUSTIN:

STATE PRINTING OFFICE, D. & D. INSTITUTION.

1882.

REPORT
OF THE
AGRICULTURAL AND MECHANICAL COLLEGE.

STATE AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS, }
COLLEGE STATION, TEXAS, *March 25, 1882.* }

His Excellency O. M. Roberts, Austin, Texas :

SIR—The Board of Directors of this College, at its meeting February 11, 1882, ordered,

“That the President of the Board of Directors and the President of the College be a committee to make a report on behalf of the Board of Directors to the Governor of the condition of the College and its needs, and to request him to lay it before the Legislature with such recommendation as he may deem proper.”

In compliance with which the undersigned have the honor to submit the following:

The College opened on the first of October last, with the largest attendance since 1877, and before the first week of the session was past, every room in the dormitories was filled, and a large number of students had to be turned away for want of accommodations. As vacancies have occurred they have been filled by new appointments, and the demand for admittance has constantly been ahead of the capacity of the buildings. The aggregate attendance to date is 258; the number present for duty to-day, 180—about as many as the present quarters will comfortably receive.

CLASSIFICATION OF STUDENTS.

The plan of instruction embraces two Courses, of three years each—first, Agriculture; second, Mechanics—the completion of either Course by a student entitling him to the diploma of the College. Each Course is a valuable and liberal education in itself, embracing, besides the theory and practice of the leading feature prescribed by the laws, State and Federal, thorough instruction in the English branches, mathematics, natural sciences and their applications, history and literature, etc. Two hours work daily is required in shops or fields. The study of languages other than English is optional. There are two classes of students—pay, 91, and State, 89. The pay students are permitted to enter the Agricultural or the Mechanical Course, as they may elect, while the State students are by law equally divided between the two courses. The present attendance by courses is, Agriculture, 48; Mechanics, 132—a disproportion due to the more attractive outfit of the mechanical department, the indoors character of its work, but largely to the ignorance and misconception of the true nature and objects of the agricultural instruction on the part of those entering. This disproportion will undoubtedly disappear when the farm in all its departments is properly equipped for instruction, and the Course correspondingly developed. The average in scholarship, deportment and application to duties and studies has been in a marked degree higher than in any previous session, and the corps of students is one of which the Faculty may justly be proud.

For the information of your excellency and of the Legislature we give the

REPORTS OF COMMITTEES OF BOARD OF DIRECTORS,

at their last meeting, with such added explanations as are proper:

To the President of the Board of Directors :

Your committee on finance beg leave to make the following report :

For maintaining and instructing 93 State students, including board, fuel, washing, lights and quarters, the actual cost will be \$13.33 $\frac{1}{3}$ per month for each student, which, on the basis of nine months, would amount to \$120 per student for the session.

For 93 students, at \$120.....	\$11,160
State annual appropriation.....	7,500

Deficiency, or actual loss, creating a debt against the College for each session of.....	3,660
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To avoid this indebtedness the Board of Directors would be compelled to ask the State for an appropriation to cover this deficiency, or to discharge the students before the end of the session. The Board, considering the benefit resulting to the State from the practical and technical education of agriculturists and mechanics, would suggest that His Excellency the Governor would call the attention of the Legislature to these matters at its next session, and recommend the Legislature to make an appropriation for this difference.

Your committee found that with a continued, careful and economical management of the interest from the special Agricultural and Mechanical College fund, a portion of it could be spared towards payment of the Professors and Assistant Teachers of its branch at Prairie View, and other purposes of the Agricultural and Mechanical College, but as the law only gives the Board of Directors power to draw the same for the sole purpose of paying professors and employees of the Agricultural and Mechanical College, your committee further recommend that His Excellency the Governor be requested to ask the Legislature at its next session to authorize this change.

And with a fuller understanding of the views of your committee, we state, that the amount of interest of the special fund for the use of the Agricultural and Mechanical College is \$14,280, out of which \$2200 could be spared to pay for one professor, being at the head of the Prairie View School, per annum, \$1200, and for two assistants, \$1000—\$2200, leaving, with some modifications and changes of the salaries of other employees of the Agricultural and Mechanical College, sufficient to meet the salaries of the Faculty.

The vouchers presented to us by the President of the College for the first and second quarters of the State students, amounting to \$6162.64, have been carefully examined and found correct, and therefore we recommend their approval.

(Signed)

(Signed)

GEORGE PFEUFFER,

J. G. GARRISON,

Finance Committee.

Adopted.

As the State students were not received until October last, the \$7500 appropriation for the year ending February 28, 1882, has supported them and left a balance of \$555.33 in the State Treasury, as will be shown by the vouchers on file in the Comptroller's office, and by the Treasurer's books. There will be a deficiency then only for the year March 1, 1882, to February 28, 1883, for which to make provision, as it would be unsafe as well as unwise to trust to the contingency of the slender margin upon the board of pay students being applied to this purpose.

The report of the committee on general management was in the shape of the following resolutions, all of which were adopted.

First—That the office of farm superintendent be discontinued, the discontinuance to take effect at the end of the term.

Second—That the Professor of Agriculture, with the consent of the President, be empowered to employ an assistant at a salary of three hundred dollars per annum, to be paid out of the special fund of the College.

Third—That the president of the Agricultural and Mechanical College is hereby directed to cause a sufficient detail of the cadets to be made by the commandant every Saturday morning, for policing the grounds belonging to the barracks, parade and drill grounds.

Fourth—That the president of the Agricultural and Mechanical College, in addition to the duties of president of said College, is hereby directed to take supervisory control over the branch of this College at Prairie View.

Respectfully submitted,

JOHN G. JAMES,

President Agricultural and Mechanical College of Texas.

As a member of the committee referred to in the beginning of this report, I sign it with this explanation: I did not concur in that part of the report of the Finance Committee recommending that a part of the interest of the special endowment be transferred from the Agricultural and Mechanical College proper to the school at Prairie View, for reasons stated on the minutes of the board. I am unable to see the wisdom of making such transfer, when we are under the necessity of asking for a further appropriation to meet the necessities growing out of expenses of the State students in the College. It seems to me it would be the better course to retain the funds now appertaining to the Agricultural and Mechanical College proper, where the law now fixes them. And if it should appear that they are not needed to pay officers of the College, they could be used in meeting the

deficiency growing out of the presence of the State students. And I have no doubt the Legislature would make provision for the successful operation of the school at Prairie View from some other source. With this explanation I join with the other member of the committee in signing this report.

J. D. THOMAS,

President Board of Directors of the Agricultural and Mechanical College.

REPORT OF AGRICULTURAL AND HORTICULTURAL DEPARTMENT.

STATE AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS, }
DEPARTMENT OF AGRICULTURE AND HORTICULTURE, }
COLLEGE STATION, TEXAS, *April 1, 1882.* }

Col. J. G. James,

President of the A. and M. College:

SIR—As requested by you, I hereby respectfully submit the following brief report of the Department of Agriculture and Horticulture :

Fifty-four students have received instruction in this department since the opening of the session, October 1, 1881, and forty-eight are at present in attendance. Most of them are State students. Their progress, so far, has been good. It gives me pleasure to be able to say that, taken as a whole, the students of this department are intelligent, capable and earnest young men, who fully appreciate the opportunities they here enjoy.

The instruction was during the first term imparted by lectures, and consisted in a somewhat extended course on the History and Description of Domesticated Animals, including cattle, horses, sheep and swine. My aim was to make the lectures as practicable as possible in their bearings. The subject of improved breeds, especially those of cattle, was dwelt upon at length. Thus they were informed how, when and where each of our most important breeds originated, as far as these facts can be traced, who were the most prominent early breeders, when and by whom each breed was introduced into this country, their value for milk and beef, and their characteristic points as to form, color, size, quality, etc. In this manner we studied some eighteen breeds of cattle, half a dozen breeds of horses, eight breeds of sheep and eight breeds of swine. It is a drawback to the *practical* pursuit of this study that, with the exception of a Short-horn bull and some Poland-China hogs, the College does not own a single animal of any

improved breed. In lieu of the animals themselves, the principal breeds were represented by large but imperfect crayon sketches, and the characteristics of the breeds pointed out upon these. But the practical ideas a student can get of an animal from a sketch can, of course, not be compared to the handling of the animal itself. Nor can it arouse the same enthusiasm and interest in the student. Specimens of thoroughbred stock are indispensable to practical instruction in stock breeding. At the close of the term, February 9, the class passed a satisfactory examination. This, however, does not finish the subject of live stock as laid down in the course. Next year the same class will receive instruction in the laws of breeding and in the feeding and management of stock.

During the second term the class has been engaged in the study of botany, in which we use Dr. Gray's School and Field Book of Botany as a text book. The progress in this study has been very good. The aim is to make the students familiar with the structure of plants, their habits of growth, mode of absorbing nourishment, the production of new varieties by cross-fertilization, and, in short, to teach them such facts about plants as will be of value to them in the practical pursuit of agriculture. The botany will be finished before the end of the term. We shall then take up the subject of soils, their formation, classification, constituents, etc., which will occupy the remaining four or five weeks.

STUDENTS' WORK.

In addition to the above class room work proper, the students work eight hours a week. They partake of all kinds of general farm and garden work. They have thus assisted in laying out the walks and drives, and in the planting of 1000 ornamental trees on the College campus; they assist in preparing the soil in the garden, in sowing and transplanting of vegetables and in the hoeing and care of these. They have grafted nearly 1000 apple stocks, which were bought for the purpose of giving them instruction in grafting. Those who cannot handle teams and the various farm implements are required to work with these till they become somewhat proficient. This feature of the practical instruction is, however, not so well developed as it should be. We need an extra team for this purpose. In the busy season, when the land must be put in order for the crops as rapidly as possible, it is a loss of time and consequently a drawback to the work to put a team in the hands of an inexperienced student. The tendency is,

therefore, to give the preference to the work for the time being. The students also help at the work in the orchard, and in making the crops. I aim to give each one an opportunity to partake in every detail whereby anything can be learned. And it is but due to the students to say that they do their work. With few exceptions, they work honestly, faithfully and carefully.

THE CROPS.

Fifteen acres of new land, which were broken last fall, will be planted in cotton. Twelve acres are planted in corn, thirteen are in oats, five in rye, six in millet, one and a half in wheat and four in vegetables, which, together with the eleven acres in orchard, make sixty-seven and one-half acres under cultivation. The young peach trees in the orchard give promise of a good crop if no late frosts set in.

EXPERIMENTS

of various kinds are carried on, and others are planned for the season, but as none are completed I defer explanations of them till a later report.

STOCK.

Last fall the College purchased a thoroughbred short-horn bull for \$100, and twenty-seven head of common cattle, consisting of sixteen cows, two heifers and nine calves, for \$295. These have increased so that there are at present a total of thirty-three head of cattle.

From October 1 till March 1, five months, the mess hall was furnished with 813½ gallons of milk. The price of milk is 30 cents per gallon. The value of this milk therefore amounts to \$244.05 (two hundred and forty-four dollars and five cents). The product for March will not be much less than two hundred gallons, worth \$60. This will raise the gross income for six months to \$304.05, which exceeds the cost of the cows. The mess hall has in the same time been furnished with 2,456 pounds of pork, which, at seven cents per pound, amounts to \$171.92. This includes lard, which ought really to be valued at thirteen cents per pound. Here are at present seventy-two head of swine, nearly all grade Poland-China.

The department needs money to fence in a larger pasture. It is my ob-

ject to grade the cattle by the use of the thoroughbred male, but this end will be defeated if the stock is compelled to graze among strange cattle on the prairie. It will be an easy matter to furnish all the milk consumed in the mess hall by making the proper arrangement for pasturing the cattle, and feeding them in winter. In a few years a considerable portion of the beef consumed at the College can also be furnished by this department.

Very respectfully,

C. C. GEORGESON,
Professor of Agriculture.

REPORT OF MECHANICAL DEPARTMENT.

AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS, }
MECHANICAL DEPARTMENT, *April 1, 1882.* }

Prof. J. G. James:

SIR—I have the pleasure of submitting a brief report of the work and condition of this Department for the first six months of the present session.

There are at present in attendance in the Department 140 pupils. Of this large number only six had any practical experience before coming into the Department, and that but very limited.

The first or graduating class were instructed in mechanical drawing last session, and are pursuing same this session in construction of original designs of mechanism, steam engine work, structures, etc. They have had practical shop instruction in wood working, and are now engaged in iron working.

The second and third classes have been instructed in free hand drawing, and are now drafting with instruments, besides shop work. All have had shop work for two hours on Mondays, Wednesdays and Fridays, and two hours each on Tuesdays and Thursdays.

The first class have completed their course of civil engineering, which, with their surveying and practice in drafting, should give them a fair start in any engineering corps.

They have had lectures on steam machinery, engines, boilers, etc., and have sketched the most important types of them; have tested native woods, and before the close of the session will have completed a course of study on the steam engine, theoretically and practically, and investigations of ma-

materials of construction employed in machines. The work actually done, and the spirit of earnestness with which it is executed, can be understood only by personal observation and inspection. It is highly satisfactory to all who have *seen* it. Our only regret being that we have *not* the facilities for giving pupils opportunities for more varied and for more extensive practical work.

Every student in the Department has gone through the prescribed course of joinery and manipulations with wood working tools in making joints, such as the mortise and tenon, dovetails, etc., and about three-fourths have practiced scroll sawing and inlaying of ornamental designs. All have made models of roof and bridge trusses which would do credit to any workman of ten years experience, and a number have tested the latter. About three-fourths have had exercise in wood turning, but here again we are limited to the use of but *one* wood lathe and two small polishing lathes, so that each pupil can practice turning but a *few hours* during the whole year.

It was necessary to put up forty-eight sets of wood tools at the beginning of the session, and work of fitting up benches, vises and tool racks was nearly all done by pupils. One hundred and thirty have made for themselves drawing boards, T squares and set square, which they use for mechanical drawing.

The students have improved class rooms and the College buildings by additions of furniture, shelving, etc., and made many needed repairs and improvements.

Most have had practical instruction and experience in care and running of the steam engine, and before the close of the session all will have had this practice.

A cord wood saw made in the College shops has done good service and saved much labor in cutting fire wood.

A small smith shop for dressing tools, etc., has been added to the shops by the work of the students.

The students are enthusiastic and interested in all that is going on in the Department, and though they have time and inclination for more and better practical instruction with tools and machinery, cannot get it without an additional equipment. We invite public inspection to what we have done and are doing. The practical instruction is limited to hand tools almost exclusively, because we have but five machines all told. A student scarcely gets started in his work before he is crowded out of his place to give the second an equal chance. In this school for instructing 140 pupils in mechanics, we

have accommodations for only *eight* at vise work and two (2) on machine tools (lathes).

As a matter of record, we have the smallest practical equipment and corps of instructors of any mechanical school in the United States and the *largest* attendance; yet individual pupils have accomplished as much as is accomplished in *any* school, and more than is done in most of them.

For next year our equipment and accommodations must be five times as large as at present to give instruction of any value upon machines, and unless so increased the efficient instruction of the present third class, now numbering 104 pupils, will be simply impossible.

Another equally necessary addition is a drafting room. There are no class rooms or other unoccupied apartments in the College buildings where drafting can be done under the eye of an instructor. Estimates for drafting rooms were included in those furnished you by myself at the late extra meeting of the Board of Directors.

Hoping that the above will meet with your approval, I remain,

Your obedient servant,

FRANKLIN VAN WINKLE,

Professor Mechanics, etc.

